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THE
LAWS OF HEALTH.

“ And such is human life, so gliding on,
It glimmers like a meteor, and is gone !
Yet is the tale, brief though it be, as strange,
As full methinks of wild and wondrous change,
As any that the wandering tribes require,
Stretched in the desert round their evening fire ;
As any sung of old in hall or bower
To minstrel harps at midnight’s witching hour !”

ROGERS.

THE
LAWS OF HEALTH,

IN RELATION TO

MIND AND BODY:

A Series of Letters

FROM AN OLD PRACTITIONER TO A PATIENT.

BY

LIONEL JOHN BEALE, M.R.C.S.



LONDON:

JOHN CHURCHILL, PRINCES STREET, SOHO.

M DCCC LI.

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P R E F A C E.

ALTHOUGH there are many works on health addressed to the public, yet it cannot be said that their influence has been sufficient to supersede the necessity of another, while such manifold evidence continues of the desolations which afflict mankind from ignorance of the laws of health. The daily duties of a medical practitioner bring to his notice many lamentable cases, where a small degree of such knowledge would have prevented serious evils. There are many diseases which may be altogether prevented by attention to the laws which govern animal life ; and of those disorders dependant on some infectious property in the air, or other mysterious causes, we are the better able to resist the influence, the more we are guided by the laws of health.

That the body and the mind may be so trained as to resist disease altogether would be too bold an assertion, but it is certainly true of a vast number of the diseases which afflict our race. We have only to compare the

inhabitants of a healthy part of the country with the inhabitants of towns—or those inhabitants of towns who can live in dry, well-ventilated houses, in airy streets and squares, with those who live in ill-drained, close, damp courts and alleys—or those who can command wholesome food, with those who are obliged to live on anything they can get—or those who are well clad and protected from weather, with those who are starved with cold from insufficient protection—or those whose occupations and whose knowledge lead them to spend many hours daily in the open air, with those who, by choice or necessity, spend the whole day, and day after day, within the walls of a house—or those who, with temperance, take of fermented drinks so much only as is beneficial to health, with those who destroy their stomach first, and their brain afterwards, by the madness of intoxication—or those who follow noxious trades without proper precaution, as painters, workers in lead and mercury, with those who follow the healthy occupations of carpenters or masons.

These are only *some* of the cases in which we can prevent disease, and in which we have our choice of a life of health or a life of sickness. Such books as the present cannot be too numerous, while the laws of health are so grievously disregarded. How rare it is to consult a medical man on the prevention of disease, and

yet, in a well-ordered state of society, this should be frequent. Observance of the laws which regulate life and mind have improved, are improving, and will continue to improve our race, physically, morally, and intellectually. I shall venture this little work, in the hope that it may contribute, in some small degree, to extend a knowledge of laws, upon the due observance of which the value of life depends.

108, LONG ACRE,

March 13, 1851.

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LETTER I.

HEALTH OF MIND AND BODY.—LAWS OF NATURE.

MY DEAR F——,

IN the hope with which you inspire me, that the observations on human life contained in the following pages have already been of some use, I purpose undertaking their revisal ; and in so doing, shall dedicate the labour to the memory of one who has been called away from us, who had also been pleased with some of these letters, and who took great interest in all subjects connected with the training of mind and body.

I shall endeavour to arrange the Letters in some order, and remove those repetitions and redundancies you mention, which could hardly fail to have occurred, from the manner of their composition. We shall take a general view of human life, from its earliest moment, through the maturity of our mental and corporeal powers—their decay in advancing life, and old age, to that last scene of all, when we shall close our mortal career, and, let us hope, be somewhat prepared to change this mortal, to put on immortality.

We shall pass in review the management of mind and body, in relation to health, at the various stages of our journey from infancy and childhood to old age, remark on some of those diseases which we have the power of preventing or greatly controlling, and take a brief glance at the influence of the moral sentiments and the intellectual faculties on our corporeal organization. There can be no doubt that all persons of ordinary sense and discretion may practically apply some knowledge on these subjects, to the promotion of the health and happiness of themselves and families.

It is not necessary that parents should possess sufficient medical knowledge to enable them to treat the diseases of their children : but it is very desirable that they should know how, by proper training, to give them constitutional powers to resist disease. With a view to this knowledge, we shall have to consider all the conditions of health, and the laws by which it is governed ; and we shall thus be enabled to deduce the principles that should guide us, at all ages, in order to establish that greatest of earthly blessings, “ a sound mind in a healthy body.”

In all ages of the world, contemplative men have been fond of speculating on the origin and nature of life, and the various structures which exhibit it. Such are the difficulties surrounding the subject, that after a whole life spent in the most curious investigations of the minute structure of animals and vegetables, after applying to the knowledge so obtained the facts supplied by chemistry, electricity, magnetism, and all the sciences which in any

way bear on the subject, the wisest philosopher can give no other explanation of the ultimate or efficient cause of the various mysteries he has spent his life in examining, than that vegetables live, animals live and move, and man reasons, in accordance with laws, imposed on matter by the will of an Almighty intelligence. You may ask what is the use of such inquiries, when the simplest peasant can reach the same conclusion, without any more difficulty than faith in the Mosaic account of the creation. But God has given to all his rational creatures, senses which delight in observing and examining the innumerable objects around us ; He has bestowed on us intellectual powers, which enable us to comprehend much, to reason considerably, and to imagine still more, concerning the mighty works of creative power ; and He has endowed us with an immortal soul, which is daily strengthened by increasing knowledge of His works, and consoled by daily additions to the evidences of His supreme power and justice. Such inquiries, therefore, are the proper duties of man ; they give activity to faculties which our nature prompts us to employ actively, and the results of such inquiries are beneficial in the highest degree, not only to the individual, but to society.

In all ages of the world, men would be lost in wonder at the difference of the same body in life and in death ; but as soon as the reasoning powers had been educated by knowledge, they began to inquire into the causes of the difference. The Greeks at an early period speculated on these subjects, and their various sects of philosophers held each their own peculiar opinions. The vital prin-

ciple was attributed to what the Greeks called *psyche*, and the Romans *anima*, corresponding to our term, the soul; we must, however, bear in mind that these are only symbols or names—they convey no real knowledge, and you will find these terms very variously interpreted and defined.

In using names for things, we fancy we convey knowledge, and if all were agreed as to the exact definition of names it would be so; but, unhappily, different minds apply different ideas to the same name, and disputes are often continued, when, if the parties could divest themselves of the influence of names, and compare their notions of the things, they would find less difference in their opinions than they imagined. Perhaps the majority of men spend their whole lives in mere verbal discussions, taking for granted the explanation of their favourite authors, and never properly examining the things themselves. We should never forget that language is the mere vehicle of knowledge, and not knowledge itself; and education will never be well carried on until this is more generally understood. In the middle ages there were two sects of disputants, called Nominalists and Realists; the same names may be applied, in our own day, in a different sense, and men may be divided into the many, who regard names alone, and the few, who also regard the things which names stand for.

When we inquire into the nature of the matter which constitutes the globe we inhabit, or of the living beings which exist upon it, we find both organic and inorganic bodies, subject to certain fixed laws, invariable and

immutable. These laws are generally termed the laws of nature, our forefathers having assumed the abstraction, probably from pious motives, to avoid the frequent and familiar repetition of the Divine name. But as the use of the abstract term, Nature, excites in many minds the notion of some power different from that of our Creator, it may be necessary to state that, when employed in scientific works, it can mean the only Agent whose power we acknowledge as competent to establish the laws which govern our globe, or the glorious universe by which we are surrounded. Every step of our progress in knowledge of the Laws of God is attended with unceasing delight and gratification, because we find that the more we inquire into them, the more we see to excite our admiration and veneration. We discover, at every step, proofs of the immutability of laws, which have governed Organic and Inorganic bodies since their creation,—laws which, once imposed, have continued through ages to perform the miracles by which we are surrounded,—laws which require no adjustment or reform, like human laws, but contain within themselves remedies for all accidents, which repair their own disorders, (or what appear such to our limited views),—laws so admirable that, far from exciting the terrors of superstition, the more they are examined, the more they teem with evidence of the Power, the Wisdom, and Beneficence of God.

The laws of Animal life, some of which it is our purpose to examine, abound with the same evidences, and it is one object of our correspondence to examine whe-

ther we possess within ourselves faculties and powers to understand, to exercise, and to direct the laws which govern health of mind and body. In obtaining knowledge of the Laws of Health, and making a proper use of it, nearly every moment of our existence may be enjoyment and happiness; the cultivation of this knowledge is one of our most important duties, and leads to such a clear conviction of the beneficence of the Divine government, as to generate, in every inquiring mind, the most delightful feelings of the present, and the most happy presages of the future.

The possession of health of mind and body is, perhaps, but another way of expressing the possession of happiness, for if the mind is healthy, its occupations will be always attended with pleasure; constantly employed in the study or contemplation of the works of Nature, investigating the laws of our moral being, and actively performing the duties which a knowledge of these laws teach us,—works of utility to our family, our country, and our race, endeavours to spread the knowledge we have acquired to the greatest possible extent, works of benevolence and charity, — this employment of our time will result from a healthy condition of mind. From a healthy condition of body, we obtain strength to perform our duties, by which exercise becomes an actual pleasure, and mere motion enjoyment. All our organs perform their faculties and functions so harmoniously, that nothing impedes the free action of the mind. Our spirits are good, dejection and melancholy scarcely known, because the tone of our mind is not impaired by derangement of bodily functions.

You will be inclined to say this is too perfect a condition for humanity; but although, to its full extent, rarely realized, to a certain degree it is, in many instances. Activity of mind and body is the evidence of a healthy condition of both, and we all know a sufficient number of examples to satisfy ourselves, that "*mens sana in corpore sano*" is not a mere dream. Knowledge of the laws which govern mind and matter can alone enable us to regulate our mental and bodily organs to the standard of health; to obtain such an acquaintance with these laws is not very difficult, and its importance cannot be exaggerated. I shall first take a rapid view of the History of the Medical Art, which will afford the opportunity of remarking the delusions that have prevailed in different ages on the subject of medicine. We will consider the organs of mind and body in their healthy condition, and the rules to be adopted to keep them so; and examine life at every stage, from the cradle to the grave. The subject cannot but be interesting; whether it be also instructive, will depend on the manner of treating it.

LETTER II.

SKETCH OF THE HISTORY OF MEDICINE.

MY DEAR F——,

AMONG the practitioners of medicine, from the earliest ages, there have been many first-rate minds, adorned with all the virtues that can grace humanity. It is a favourite opinion, that the pursuit of the natural sciences has a tendency to induce scepticism and irreligion; you are somewhat inclined to be of this opinion, and as circumstances will send one of your family to a medical school, I shall endeavour to comfort you, by showing that there have been among us some striking examples of piety, charity, disinterestedness, and love of truth. If there is any study which cherishes and enlarges a complete conviction of the existence of a Divine mind, and its attributes of power, wisdom, and beneficence, it is in the kind of knowledge necessarily obtained by a diligent student of the medical and allied sciences. The scientific pursuit of medicine enlarges the understanding, while the practice of it improves the heart. There are none who toil through life with more of internal happi-

ness and satisfaction, than the better class of medical practitioners. They are often able to relieve suffering and excite gratitude; and their visits tend to the peace, good-will, and affection of families.

The origin of the art of medicine is thus described by Dryden:—

“ The first physicians by debauch were made;
Excess began, and sloth sustains the trade;
Better to hunt in fields for health unbought,
Than fee the doctor for a nauseous draught:
The wise for health on exercise depend,
God never made his work for man to mend.”

Cicero took a much more liberal view of the occupation than our modern poet; he says, that “in nothing does man approach nearer to the gods, than in giving health to men.” In the earliest ages, benevolence was probably the actuating motive for the acquisition of medical knowledge; the Lady Bountifuls of former days—and a few of the race yet remain—were always the medical advisers of their districts. Although other motives now operate in the choice of medicine as a pursuit, yet it is often the parent of benevolence, which cannot fail to influence medical practitioners in the exercise of their profession; at all events, when a benevolent mind has selected medicine as a pursuit, the evident sympathy which he exhibits renders his visits cheering to both patient and friends.

For many ages, the art of medicine was entirely the result of experience; for, without some knowledge of the structure of the body, the practice of physic could be no

other than blind empiricism. Before any knowledge of anatomy had been acquired, or the circulation of the blood known, men began to invent theories, upon which they based rules for practice ; but these theories, being founded on very limited knowledge of facts, were generally fallacious. Even now, we are hardly in a position for generalization ; but with the knowledge opened to us by chemistry, and the minute structures of the body disclosed by modern microscopes, there is some hope we may soon be so.

The first physicians were not made, as the poet says, by debauch ; the causes of disease are too various to warrant so sweeping a conclusion. In the simplest condition of mankind, and in the earliest ages of the world, diseases of various kinds must have occurred. The disorders of infancy and childhood, such as measles, hooping-cough, scarlatina, or other analogous complaints, occurred probably in every age of the world ; and premature death was not uncommon. Epidemic diseases spread then, as now, by the influence of atmospheric changes ; and although, from the simple habits and plain food of the earlier inhabitants of this globe, and, probably, as long as they were confined to the better climates of the earth, diseases were neither so general, nor so fatal, as at present, yet there can be no doubt they carried off their victims. The first physicians were not made by debauch, but, at least in part, by the result of laws which have subjected man to various afflictions for wise and salutary purposes. Parents, having a sick child, would naturally consult the elders of their clan, or sept. Those

among them who had powers for observation, would soon discover that diseases observed certain laws: for example, a healthy child attacked with measles would refuse to eat, but not to drink, and that those recovered most favourably who were not pressed with food. Every one has seen a dog culling its own physic, and instinct or imitation might possibly have led our forefathers, in very remote ages, to test the effects of various plants. Cases of poisoning would occur then, as now, from children eating berries or leaves of a noxious kind; and in this way a purge or a diuretic might have been discovered. The use of bark in intermittent fever is said to have resulted from the fact, that an Indian, labouring under an attack, having accidentally eaten some of the leaves or twigs, and getting well unusually fast, led to the administration of this substance in other similar cases. There can be no doubt that, in many analogous instances, reputation for certain curative effects was, in a very early stage of society, acquired by various herbs.

Thus the elders of a society would acquire knowledge of the action of various plants on the human body, and the benefit to be derived from them in particular cases, such knowledge increasing with every generation, by the discovery of additional remedies. It is not improbable that, in every country, the earliest physicians were also the priests. Civilization and population must have increased greatly, before it would have been possible to obtain a means of living from the practice of medicine.

Now and then a person of remarkable aptitude for acquiring a knowledge of the laws of nature, as ap-

plicable to health and disease, would appear in all countries. *Æsculapius* was probably a very acute observer, and may have attained immense reputation for his knowledge of disease; and thus, according to the manner of the Greeks, he was deified after his death as the God of Physic.

Many years later (before Christ 460) flourished *Hippocrates*, the most famous physician of ancient Greece, who has left behind him a collection of aphorisms attesting his powers of observation, which may still be read and digested with great advantage. He is the most ancient author whose works have descended to us, and is properly considered the father of medicine. Much superstition was combined with the practice of medicine for many ages after *Hippocrates*, nor have modern times been free from the admixture, even to a recent period. The terms endemic and epidemic are used by *Hippocrates*, the first being applied to diseases which are frequent, and well known in particular localities; the latter, to such as prevail occasionally, sometimes in one place, sometimes in another, and attacking great numbers at the same time. *Hippocrates* had very little knowledge of anatomy, and his practice was entirely empirical, derived from a close observation of nature. His high sense of the duty of a physician is shown by the oath he required of a pupil, "that he would revere his master as a father—that he would exert his art only to the benefit of his patients—never to injury or death, even though required by them—that he would never divulge professional secrets.

Other physicians are named as celebrated among the Greeks, Praxagorus, Erasistratus, and Herophilus, the second having recorded the indications of the pulse. The profession was now divided into the three branches of dietetic, pharmaceutic, and chirurgic; in the time of Hippocrates, no distinction was made between medicine and surgery.

Physicians were afterwards divided into dogmatists and empirics,—Serapion of Alexandria, who lived 280 years before Christ, being recorded as the founder of the latter sect; their doctrine was to depend on personal experience alone. The dogmatists taught that physicians ought to understand the latent as well as evident causes of disease, and therefore a knowledge of the natural action and functions of the internal organs was necessary. Celsus flourished about the time of Nero: he has left a work, valuable as giving some idea of the state of medicine in his time. Aretæus lived in the time of Vespasian—was energetic but simple in his practice, averse to that farrago of medicine, to which ignorant practitioners in all ages have been addicted. He considered experience our best guide, and refers to the necessity of taking hints which nature gives to the physician.

Galen was the most celebrated physician of the Roman empire. He was born at Pergamus, in Asia, A.D. 131, practised at Rome during the reigns of Marcus Aurelius, &c., and died in that of Severus. He performed many experiments on animals, and studied their anatomy; but of human anatomy he knew little; consequently, the theories he was fond of forming were often baseless and

irreconcilable with nature. Galen established so high a reputation, that for centuries physicians continued to be regulated by his doctrine and practice.

Alexandria, in Egypt, was the most famous school of medicine for many ages, from the time of the Ptolemies, and no better testimonial could be adduced than having studied at Alexandria. When the city was taken by the Mahomedans, the great library was burnt, but among the few books preserved were some on the subject of medicine. These books, with the assistance of the Greek physicians employed by the early Arabian Caliphs, were the means of establishing the Arabian school of medicine, which afterwards became very celebrated. Many of the sciences, but especially medicine, were encouraged by the Caliphs; for although the Mahomedans are, by the tenets of their religion, fatalists, yet, practically, they had no objection to try the efficiency of the art of medicine in saving life. Al-Raschid, who built the beautiful city of Bagdad, founded there a hospital and college, the early professors of which were Greeks and Syrians. The practice of physic at this time is illustrated by the fact, that the Caliph having a fit of apoplexy, all his physicians gave up the case as hopeless, except a young Greek, who proposed bleeding. Raschid's eldest son protested against it; but Almamon, the youngest, said, that as the physicians are unanimously of opinion that he must die, what harm can there be in bleeding? He may possibly recover with it, and without it he must die. He was accordingly bled, and soon recovered.

The Arabian school continued to flourish from the

seventh to the twelfth century, and produced some very celebrated physicians, but who did little more than translate the works of Hippocrates and Galen. The Arabians borrowed from the Greeks, and the European physicians of the middle ages borrowed from the Arabians. The small-pox was introduced into Europe from the East, and the first accounts we have of it are by Arabian physicians. We are also indebted to this school for the introduction of some of our most useful drugs. Avenzoar was one of the most celebrated Arabian physicians. He describes physic, surgery, and pharmacy as different professions. He makes excuses that, contrary to the custom of his country, and the example of his own father, he had applied to the study of the two latter, which were in so little esteem with physicians that they thought it below their character to understand them, and therefore left all manual operations, as bleeding, couching of cataracts, laying on caustics, &c., as well as the making up of medicines, to their servants.

During those very dark ages for Europe, when what little learning remained in the world was among the Saracens, most of the western monarchs had in their service one or more Jewish physicians. The habits of ubiquity of this people led some to Bagdad, and other places where learning was patronised by the successors of Mahomet. A knowledge of the art of healing was then profitable enough to tempt this money-loving people to embrace it, and, for some time, Jewish physicians were in much request in several of the palaces of Europe.

The first European university that acquired a reputa-

tion as a school of medicine was that of Salernum, in Naples. From the statutes of 1110, it appears that the examinations were very strict in Galen's therapeutics. The candidate was expected to bring testimonials of having studied physic for seven years : if he was to be a surgeon, he must have learned anatomy for one year; he swore to be true and obedient to the society, to refuse fees from the poor, and to have no share of gains with apothecaries. A book was put in his hand, a ring on his finger, his head was crowned with laurel, and he was dismissed with a kiss.

The dissection of the human body was first practised at Bologna, in 1315. This and other Italian universities were long famous for their medical schools.

Much quackery was introduced into the practice of medicine by the alchemists, among whom Paracelsus was pre-eminent. He is reputed to have been the first physician who employed mercurial preparations in the cure of disease. He at one time acquired an immense reputation, but his intemperance and his ardent imagination led him into disgrace ; he was obliged to quit Basil, where he taught, and although he boasted of being in possession of the philosopher's stone, he died at the early age of forty-eight.

The pursuit of anatomy on the one hand, and chemistry on the other, introduced into medicine other elements than the bare experience on which the practice of the Greek and Arabian physicians could alone be founded. Many interesting discoveries were made in anatomy and physiology in the Italian universities, and our countryman

Harvey revolutionized the whole theory of disease, by his discovery of the circulation of the blood. The immediate effect of this knowledge was to obscure the science of medicine, by the cultivation of theory to the neglect of facts and observation. The fondness for generalization has been the source of sects in medicine, as violent in the support of their various dogmas as those of any religion, and no longer since than the end of the last century, the rival pretensions of the followers of Cullen and Brown produced contentions, and almost violence, among the students, not only of the university of Edinburgh, but of several others on the Continent.

In the early part of the last century, no physician was considered accomplished unless he had spent some time at Leyden. Boerhaave was the most celebrated teacher of this school,—he lectured on various subjects, chemistry, botany, and medicine, and shed lustre on all. His reputation stood higher than that of any other European physician; he was an example of industry and learning, not only to his own profession, but to mankind. He was consulted personally, or by writing, from the most distant parts of Europe, and there is an anecdote of a letter being addressed to him from a Chinese mandarin, directed “To Boerhaave, in Europe.” The wealth he obtained from his practice was immense; at his death he left more than two millions of florins. In England, we have had some physicians who enjoyed European fame. Sydenham in the reign of Charles II., and Dr. Mead, who flourished in those of George I. and II., may be mentioned as among the most eminent before our own times.

Edinburgh began to acquire reputation as a school of medicine about the middle of the last century, principally from the great success of Dr. Cullen, whose celebrity resulted from a peculiar talent for lecturing. In early life, Cullen and Dr. W. Hunter formed a partnership at Hamilton, the object of which was, that each should alternately be allowed, during the winter, to study at some medical school, while the other should continue the business ; Dr. Hunter afterwards acquiring as high a reputation in London, as his partner did in Edinburgh. Dr. Cullen took the chair of chemistry in 1756—in 1765 he lectured on *materia medica*, and raised the class of his predecessor from 10 to 100. In 1766, Cullen succeeded to the professorship of medicine, resigning chemistry to his pupil, Black. No lecturer ever raised more enthusiasm in his pupils than Dr. Cullen. His lectures were nearly extemporaneous, from very short notes, and his delivery was varied, and more eloquent than we could have supposed from his published works. The latter part of his career was disturbed by the pretensions of Brown. Brown had been employed to translate a medical thesis into Latin ; he became pleased with the subject, and attended lectures. Dr. Cullen, discovering his knowledge of Latin, made him tutor to his sons. Brown obtained his degree, and introduced a new system of medicine, in opposition to his old master. His improvident habits soon involved him in pecuniary difficulties, and his violent temper in quarrels with his medical brethren. The fatal results of Brown's doctrines brought discredit on them in Edin-

burgh, and their author removed to London, where he soon after died. His fanciful theories made greater impression in Germany and Italy, than among the more practical minds of Scotland or England.

Since the commencement of the present century, some of the best surgeons who ever practised have been educated in London. The reputation of the London school has been steadily on the increase, and her colleges and university bid fair to place her on the same eminence for the natural and medical sciences, as she has long attained for wealth and civilization.

LETTER III.

EMPIRICISM.—FALSE THEORIES OF MEDICINE.

MY DEAR F——,

AMONG the diseases to which the human frame is liable, of course many are incurable; and it is on the fears of persons thus afflicted that the inventors of novel modes of treatment, the proprietors of nostrums, and pretenders of all sorts, make their harvest. The art of medicine is partly empirical; many of the remedies we use have been discovered to be so by accident or experience; hence the opinion, that there may be secret modes of cure, for particular diseases, in possession of persons who have never studied medicine. Upon this possibility, there has ever been a field for the owners of nostrums, the curers of disease by miracles, the projectors of new methods of treatment, as Homœopathy and Mesmerism, or the universal application of an old one, as Hydropathy.

As long as the world lasts there will be nostrums; every family remedy is one; and who can say that an old lady, who may have put together several simples,

and formed a useful remedy for a cough, shall be prevented by law from giving or selling her medicine. Medical reformers argue, that all medical treatment should be confined to those who have proved their qualifications by proper tests; but the public will never submit to such an attack on liberty: nor would it be just, if it could be accomplished, for some very useful medicines have been nostrums, as James's powder. Until we can make medicine an inductive science, we have no right to ask for the exclusive privilege of medical treatment. The true method of putting down pretenders in medicine, as in everything else, is to enlighten the public mind,—it is ignorance which affords patronage to secret remedies, miraculous cures, and quackeries of all sorts, both in and out of the domain of physic. When all medical practitioners shall cease to be pretenders to more knowledge than they really possess, then will the public cease to patronize quackery;—and a more complete education—intellectual, moral, and professional—of all classes of medical practitioners, engendering higher views of their duties, will cause them to rank higher in the estimation of the public, and be productive of greater benefit, than any exclusive privileges which the Legislature could confer upon them.

True science must always depend on an extensive knowledge of facts, and a close observation of all their relations to each other, and all human arts must be founded on a just application of the laws of nature. The sciences which approach nearest to perfection are those which relate to inorganic matter, and this results

from the great uniformity of the laws which pervade the inorganic creation. Organic chemistry has not yet reached so perfect a state as the chemistry of inorganic bodies. In the former, we have to inquire into the nature of bodies which depend on the mysterious power of life for their production, while, in the latter, we have to deal with substances, whose formation depends upon those fixed and definite laws which govern the inorganic creation. To medical inquirers, the laws of life and of mind appear to be constantly disturbing the facts we observe, and the consequent want of uniformity in the sequence of events constitutes the great difficulty of just conclusions in medical science. If all diseases, in all persons, exhibited the same series of facts, and all remedies, applied to the same diseases in different persons, exhibited the same effects, medicine might be reduced to an inductive science. But the ever-varying influence of peculiar conditions of the living principle, and the operation of the mental faculties and moral emotions, are so difficult to be estimated, that our facts are too often uncertain, and our inferences only based on probabilities. How many medicines, during the last twenty years, have been boldly introduced as certain remedies, and, after a transient reputation, have been dismissed and forgotten, from their utter inefficiency.

It is impossible altogether to banish hypothesis from medicine, for speculation has in many instances led to experiments, which have resulted in the establishment of useful facts. In all ages, not excepting the present, medical practitioners have been too fond of theorising;

and rules of practice have too frequently been based on false theories. We can only improve medical science by a more rigid inquiry and adherence to true facts and true inferences. The prevalence of such a delusion as homœopathy is a remarkable illustration of these observations; for it is as false in facts as in theory.

That the infinitesimal doses have no influence whatever on the animal organism, either in a morbid or healthy condition, is a fact which can be readily proved by experiment—if it be considered necessary to appeal to an experimental inquiry, in order to prove that the millionth of a grain of charcoal, or the decillionth of a grain of opium, administered a certain number of times in the day, are utterly incapable of producing any marked effect on the functions of the animal body.

Homœopathy is a sort of revival of ancient medical practice, and is an attempt to go back two or three centuries—in this respect bearing some resemblance to other modern attempts to restore the mediæval absurdities of by-gone ages. If life has ever been preserved by medical aid, then must homœopathy be one of the greatest delusions which human blindness ever adopted. We have medical as well as religious sceptics, who utterly deny the influence of all medicinal remedies, considering Nature the only true physician. Medical science appears to be just now in a transition state: formerly, people drugged themselves too much; we are now in danger of the opposite extreme.

The influence of Faith and Hope in the cure of disease is very remarkable. Such influence explains the

cures of Prince Hohenlohe, the pilgrims to the grave of the Abbé Paris, &c. Sir H. Davy, in his young days, assisted Dr. Beddoes, who was trying to cure disease by the inhalation of gases. Before applying the inhaler, Davy was accustomed to ascertain the temperature by placing a thermometer under the tongue. While thus employed on a countryman, who fancied this was the wonderful process he had heard of, the man exclaimed that he already felt better. Davy took the hint, left the thermometer in its place some time, and reapplied it every morning,—his patient improved in health, and ultimately got quite well, without any other treatment.

The following statement is in Burton's "Life of Hume:"—"A Jansenist, distinguished by his sanctity and the wide circle of his charities, the Abbé Paris, having died, a tomb was erected over his remains in the Cemetery of St. Médard. Thither the poor repaired, to bless his memory and pray for the state of his soul. But it was discovered that this devotion was speedily rewarded: for the sick were cured, the blind saw, all manner of miracles were performed; and the evidence of their genuineness was considered so satisfactory, that the Jesuits were never able to impugn them. At length the series of miracles became offensive to the government—it was resolved that there should be no more miracles at the tomb of the Abbé Paris, the gates of the cemetery were closed, and the miracles came to an end." This occurred in the year 1732, two years before Hume's visit, and was the constant subject of conversation.

He states "that many of the miracles of the Abbé Paris were proved by witnesses before the Bishop's Court at Paris, under the eye of Cardinal Noailles. His successor in the archbishopric was an enemy to the Jansenists, yet twenty-two rectors or curés of Paris press him to examine those miracles, which they assert to be known to the whole world. No less a man than the Duke of Chatillon, a duke and peer of France, of the highest rank and family, gives evidence of a remarkable cure performed on a servant of his, who had lived several years in his house, with a visible and palpable infirmity.

The cures effected by mesmerism may be explained in most instances by the influence of the emotions, and of a highly-excited imagination. Mesmerism is not of universal application; it takes effect only in peculiar constitutions, and we must admit that there is something quite inexplicable in its operation. Why, in any case, sleep should be induced by certain manipulations or volitions of the operator, affecting the nervous system of the patient, cannot be understood; but the fact must not be denied, that sleep is often produced by what is called mesmerism. We may doubt whether any influence passes from the operator to the patient; it seems absurd to suppose that the mere volition of one individual can enter into the nervous system of another. Perhaps the true explanation of these odd cases is, that all the effects are produced in the patient by the influence of his own very susceptible imagination. The persons who can be placed under the influence of mesmerism are very peculiar,—they are of an eccentric,

anomalous character, liable to epilepsy, hysteria, or some other disturbance of the nervous system.

Of homœopathy we may further remark, that if its professors honestly adhere to the very minute doses of medicine which they profess to administer, they do no harm by drugs, but that the sin of their system is to look on, and allow disease and death undisturbed possession of their patients, which must frequently occur in severe diseases. In many cases, it is wise not to interfere with the course of that "*vis medicatrix naturæ*," which is sometimes all-sufficient to resolve the disturbances of health,—here the homœopathist acquires his reputation; but many valuable lives have been sacrificed, both to this do-nothing system, as well as to the "*médécine expectante*" of some Continental doctors. These practitioners never administer a purgative; and it requires no eloquence to convince any observing or reasonable mind, that such neglect must be often productive of most serious consequences. The same may be said of opiates and other important remedies, which are most efficient, when administered in the right cases and at the right time.

The test of experience is not alone sufficient to prove the value of a remedy in the cure of disease. Because a man has been taking arsenic or mercury for the cure of some complaint, we must not be satisfied to say he has been cured by these agents, merely because he has got well under their administration. It is also necessary to show that their agency on the functions of the body is always such as to render this probable. A devotee, who

visits the tomb of a saint, gets well while doing so ; but does it follow that the tomb or the saint can have any influence on the animal economy? So a person gets well while taking the infinitesimal doses of homœopathy ; but you have no more right to infer that it was an effect of the globules, than that Sir H. Davy cured the case of paralysis by the daily application of the bulb of the thermometer to the tongue. You must show that your remedy has sufficient power over the functions and structure of the body, to render it probable that it can have been influential in the cure of the disease. These remarks apply equally to mesmerism.

LETTER IV.

ON THE ORGANS AND FUNCTIONS OF DIGESTION.

MY DEAR F——,

IT is not my intention to enter into much physiological detail; I shall confine my observations to those functions of our constitution, the action of which we have power to regulate, to the improvement of health and the prevention of disease. I shall refer for more anatomical and physiological information to "The Philosophy of Health," by Dr. S. Smith; to Combe's "Physiology," or the articles on anatomy and physiology in any good cyclopædia.

The functions of the stomach, of the lungs, of the skin, and of the brain, are those which we can most direct and control—so much so, that we hold in our own hands the power of preventing many of the diseases to which they are liable, according to our knowledge and application of the natural laws by which they are governed.

When you examine a plant, and observe its roots

spreading in all directions around, for the purpose of extracting nourishment from the earth, you see precisely what occurs in the nutritive organs of animals. Minute branches of vessels, like roots, covering the inner surface of their intestinal tube, absorb the nutritive particles of the food, and carry them to the blood. We will trace our food, from its entry by the mouth, through the stomach and intestines, which will bring before us the organs and processes of digestion and nutrition. The food is, or ought to be, minutely ground by the teeth, and blended with saliva, to prepare it for digestion. On its arrival in the stomach, it undergoes some peculiar process, by admixture with a fluid called the gastric juice. Much changed in appearance, the chyme, as it is now called, enters the intestine, where it meets the bile sent in from that large organ the liver. The effect produced by the admixture of bile is not precisely understood, but it is supposed to facilitate the elimination of those particles, which, under the name of chyle, are separated from the bulk of the food, and absorbed by innumerable vessels on the inner coat of the intestines. The chyle has the appearance of milk, and passes from the small vessels which absorb it into larger ones, and ultimately into one main branch called the thoracic duct. This duct opens into a large vein near the heart, and thus, for some time after taking food, there is a supply of fresh matter to mix with the blood, and restore to it the principles which are constantly wasted by muscular motion, and other functions of the animal body.

A little reflection will show the importance of supply-

ing the stomach with sound food, in order that none but particles proper for the renovation of the blood shall be introduced into the system. If our food is of too poor a nature, a sufficient quantity of nutrient particles to supply waste are not absorbed,—if too rich, the contrary happens; but the most common error is improper food. Man has been defined a cooking animal; and, as a general rule, nothing but what has been cooked should enter the stomach.* Ripe fruits may be considered as cooked, but all unripe fruits, and raw vegetables, as radishes, celery, &c., are extremely difficult to digest, and, in fact, never are digested, unless very minutely divided by mastication. Such food does mischief in two ways, by affecting the healthy function of the stomach, thus causing indigestion—and by producing crude, useless, and injurious particles for the blood.

After the food has remained in the intestines long enough to enable the vessels to abstract its nutrient particles, the refuse is excreted. The chyle, mixing with the blood in due proportion after every meal, restores and renovates the languid powers. The feeling of faintness and languor from too long fasting is known to all, and the sensation of hunger probably depends on other causes than mere emptiness of the stomach. The new nutriment is received into the heart on its right side, from whence it passes by vessels into the lungs, there to be exposed to the influence of the air. The whole mass of blood passes through the lungs every three or four minutes. The blood is black when it enters the lungs,

* See Letter XXII. for remarks on cooking.

and becomes scarlet in the course of the processes which there take place ; and, after being so changed, it passes by other vessels to the left side of the heart. From the left side of the heart, the blood is propelled into the large arteries, which distribute it to all parts of the frame, to supply the various organs with animal heat, to repair muscular power, restore nervous influence, &c. &c. From the various organs it returns again to the heart by the veins, these vessels increasing in size by the accession of branches, just as a river gets larger by the addition of its accessories, until the whole mass of blood is poured into the heart by two large veins, one of which receives the vessel containing the chyle. In their course, the veins receive by absorption, or from a set of vessels called absorbents, the worn-out or decayed matter from all the organs of the body; this is also introduced into the circulation, but is speedily got rid of by the various excretions of the intestines, the skin, the kidneys, &c. &c.

The stomach is the caldron in which most of the diseases which are preventable by our own knowledge and efforts are brewed. Probably we do not even "catch a cold" unless the stomach is some way out of health. We may have indulged in food or drink in quality or quantity that has been injurious,—our digestion is not right,—we are exposed to wet or cold,—we have a chill or shivering,—and catarrh, influenza, or some more important disease, is generated; whereas, if our digestive functions had been undisturbed, we should have resisted the baneful influences of the atmospheric changes.

Every one knows that he can better resist the summer's heat and the winter's cold when he is in the best health. It is commonly in the stomach that the primary derangements occur, which lay the foundation for all varieties of bad health. The effects are often unobserved and slow, because many, who ultimately are the greatest sufferers from disease, may have, originally, the best powers of digestion;—those who possess stomachs which are easily deranged have more timely and frequent notices, and are sooner obliged to be observant of the drink and the diet they put into the caldron. A man who is always sick after a debauch seldom becomes a drunkard; it is more frequently one who can bear any amount of drink without much apparent present effect. Hence it often happens that, with people of weak digestion, life rolls on to old age, while in their more robust companions it is cut short at an earlier stage.

Many disregard the laws of health, because they say nothing hurts them; however, the strongest cannot continue to neglect these laws with impunity; and it is a great mistake to suppose we shall escape punishment, because it does not always instantly follow the commission of the offence. If the conditions on which health depends are not attended to, sooner or later we shall suffer. As far as the stomach is concerned, the laws of health relate to the quantity and quality of the food and the periods of taking it. The size of the stomach varies very much, as does its power of digestion. Every individual has peculiarities of stomach, which can only be known to his own experience. There are few who do

not discover, very early in life, that the stomach does its work more agreeably with some kinds of food, or some modes of feeding, than others. Articles which generally agree, now and then disturb some peculiar stomachs:—The grand rule of Cornaro, who, by great attention to diet, extended his life to ninety-eight, was to take sparingly of those things only which we know agree with us, and this knowledge can only be obtained by personal observation. Cornaro wrote his last essay on a sober life at the age of ninety-five. He enumerates the occupations and pleasures which he still continued to enjoy, and thinks that he might have lived to 120, if his constitution had not been originally weak. Perhaps the most general rule with regard to the stomach is, never to fill it to repletion. It is not necessary to health to weigh every meal, but all should know the quantity required for a healthy man, and be able to judge what is right, without waiting for the unpleasant notice that his stomach is too full. The following may be considered as full diet:—

Breakfast: Bread, six or eight ounces, with butter or bacon; one pint of liquid.

Dinner: Cooked meat, six or eight ounces; vegetables, half a pound; bread, four ounces.

Tea or supper: Bread, four or six ounces, with butter; tea or coffee.

Women require somewhat less, and children, of course, according to age. Neglect of some general rule as to quantity leads to enlargement of the stomach, so that it will hold more, and by habit require more, than is bene-

ficial, either for digestion or for nourishment. The quality of food is of the greatest importance, and the best food is the cheapest. The healthy action of the stomach often depends on the condition of the food it receives, much distress being sometimes caused by a small pellet of unmasticated food, especially of an indigestible kind, as a piece of radish, or a stewed oyster. Medical men are frequently called up at night to witness the spasms of indigestion from such a cause. Strong tea, or bad tea, will, in some stomachs, produce a similar effect; but as I have elsewhere discussed the subject of indigestion, I shall not enter more into detail here.

Perhaps I ought to have said more on the importance of only eating food of good quality. In going round the wards of a hospital, we cannot but be struck with the great number of diseases, especially of the skin, which are never seen in private practice among the wealthier members of society. The aggravated form of disease in the poor results from the bad quality, and too frequently putrescent condition, of the food which falls to their lot.

LETTER V.

ON THE ORGANS AND FUNCTIONS OF RESPIRATION.

MY DEAR F——,

THE organs of respiration and circulation are placed in the chest; and as our health very greatly depends on the due performance of their functions, we will make some remarks on those laws relating to them which are most under our own control. All animals require organs analogous to the lungs, for the purpose of admitting air into the body to come in contact with the blood, in order to induce certain changes in that fluid which are essential to animal life. Air is admitted into the lungs through the windpipe or trachea, which divides and subdivides into innumerable bronchi, leading to the air-cells, which constitute, in their aggregate, the lungs. The air-cells receive every minute eighteen pints of air, which purify eight pints of blood, the blood, imbibing from the air oxygen gas, parting with carbonic acid gas, and being changed from a very dark colour to a brilliant scarlet. The blood thus acquires a power which enables it to distribute animal heat as it circulates through the

body; and the quicker the circulation of the blood through the lungs, the greater the amount of animal heat distributed to the body.

The extraordinary rapidity of vital processes may be imagined from the following facts:—The fresh air imbibed every minute is estimated at 616 cubic inches—nearly eighteen pints. In one hour, 1066 pints, or more than two hogsheads: in one day, fifty-seven hogsheads. In one hour, 540 pounds of blood are presented for aëration; in twenty-four hours, 12,960 pounds. The whole of the blood performs its circuit in two minutes and a half, and, the estimated quantity being about twenty-eight pounds, you can form an idea of the astonishing velocity of its current.

The lungs are light, elastic, and spongy—are contained in the thorax or chest, one on each side, with the heart between them. The air-cells have been calculated at seventeen millions, the surface they present to the air about 22,000 square inches; thirty times the surface of the whole body is another calculation.

Abundant exhalation is always taking place from the lungs; in cold weather, we can form an idea of the quantity of moisture we expire, from the condensation of vapour which is then apparent. In twenty-four hours, about seventeen ounces of fluid are exhaled from the lungs, with which some waste matter passes away from the blood—occasionally in such quantities as to be offensive. On the lining membranes of the air-tubes and cells, there are vessels by which vapours and gases may be absorbed and introduced into the blood: a very

familiar instance is the absorption of the vapour of turpentine, when we breathe the air of a newly-painted room. Chloroform and æther are in this manner received into the system. Infectious and epidemic diseases, as scarlet and typhus fever, are probably received through the respiratory organs.

Sir H. Davy calculates the air in the lungs, after an ordinary respiration, at 135 cubic inches; the usual inspiration is about twenty ounces, so that a considerable quantity of air always remains in the lungs. The expired air has lost about two-fifths of its oxygen, which is replaced by an equal volume of carbonic acid gas. If the air of a room is breathed over and over again, the quantity of oxygen gradually diminishes, and that of carbonic acid gas increases; so that you may conceive how very deleterious the air will become in close places, where many persons are breathing.

The most sensible change occurring in the blood is in the difference of colour, from the dark purple of the veins, to the bright scarlet of the arteries, which is constantly repeated, for, in the course of the circulation, it again becomes black, and requires again to be purified by contact with the air in the lungs. The development and diffusion of animal heat through the body is also connected with these changes, and the influence of the oxygen absorbed. This power of generating animal heat within the body enables us to maintain an equal degree of temperature in all climates. The Esquimaux and the inhabitants of the Torrid Zone maintain in their bodies an equal temperature, though, in the one case, the ther-

mometer is frequently 100 degrees below that of the body, and in the other many degrees above it.

The amount of animal heat increases as the respiratory apparatus in animals increases in complexity of structure. In insects and inferior animals there are no lungs, properly speaking, but mere tubes, opening at various points of the surface of the body, by means of orifices termed spiracles—through these the air permeates, and comes in contact with the blood. In oysters and creatures of a similar form we find gills, which, as in fish, are respiratory organs, but only calculated for such animals as live in water,—a familiar illustration of the difference of gills and lungs occurs in the frog, which, in its tadpole state, lives entirely in the water and has gills, while the mature frog has lungs to enable it to breathe air on land. Reptiles are cold-blooded animals, and their lungs are very simple. In mammalia, which are all warm-blooded, the lungs become highly developed, but in birds, which have twenty degrees of animal heat above us, the respiratory surface is still larger in proportion to the size of the body.

The production of animal heat is due to some change in the blood as it circulates through the body, and completed by the process of aëration, which takes place in the lungs. It is a kind of combustion, producing similar changes in fuel to those of an ordinary fire. Nothing can burn without a supply of oxygen gas, and the most important product of all burning is carbonic acid gas; in the lungs, the inspired air loses some of its oxygen, and the expired air contains carbonic acid gas. The

blood in the veins is black, and contains carbon—this unites with oxygen in the respiratory process, forming carbonic acid gas, which passes off in the breath,—the blood then becomes scarlet, and transmits animal heat to all parts of the body. Why the changed blood should generate heat we do not know; we can only refer it to a natural law, of which we are permitted to see that the analogy of the result is similar to ordinary combustion; it is dependent on the vital principle, our acquaintance with which is limited to the fact, and some of its laws, but we know nothing of its essence. There are other analogies between the process of respiration and ordinary combustion; oils and fats contain very much carbon, in a state capable of easy assimilation. In cold climates, of course there is much expenditure of animal heat, and the nearer we approach the poles, the more do the inhabitants delight in fatty matters, thus supplying their internal fire with more fuel for combustion than the inhabitants of temperate climes. In the Torrid Zone, where the least internal combustion is required, the inhabitants live on seeds and fruits, which contain the least carbon of all kinds of food, in a state more difficult of assimilation, and ill adapted for the development of a large amount of animal heat.

Oxygen and carbon invariably combine in the same proportions, so that, knowing the amount of their product, carbonic acid gas, we know the quantity of each that is consumed. 12·7 grains of carbon require 100 cubic inches of oxygen, and the product is always 100 cubic inches of carbonic acid gas. If the air we breathe

does not contain a sufficient quantity of oxygen, a portion of the carbon is unconsumed. A certain quantity of venous blood requires a certain quantity of air for its purification. Each contraction of the heart sends to the lungs about two ounces of blood, which decomposes nearly a quarter of a pint of air. We consume about two gallons of air every minute, or 120 in an hour; now if the air inhaled does not contain a due proportion of oxygen, we can understand the inconvenience that will result, and this is what takes place in crowded rooms and theatres. Every hour deteriorates the purity of the air, the oxygen diminishing, and the carbonic acid gas increasing, until the air may become so impure as to destroy life, as actually happened in the black hole of Calcutta. But although, in crowded assemblies, workshops, or factories, the air may not be bad enough to destroy life, it may be bad enough to injure health. Who has not felt the exhilaration of spirits in passing from the atmosphere of a city to an open country? and the rapidity with which we can now be transported enables us easily to repeat the delightful experiment. How refreshed we feel in a few minutes, when we change the exhausted atmosphere of a large public meeting for the open air, even of the Strand. One hundred persons consume in one hour forty-five hogsheads of oxygen, and deteriorate 228 of common air, hence the headaches and languor from crowded and ill-ventilated churches, factories, concert-rooms, &c.; and this exhausted state of the system puts us in a very favourable condition for "catching a cold."

From what has been said, you will understand that a due supply of unadulterated air to the respiratory organs is one of the most important laws of health. The air we breathe should contain twenty-one per cent. of oxygen, and the quantity of carbonic acid gas should not exceed one-tenth per cent., or one part of this gas in 1000 of atmospheric air; any increase in the quantity of this noxious gas is injurious, and every time we respire in a limited space, we increase the proportion of carbonic acid gas in the air. A bird, placed under a glass receiver, can only live so long as the air contains sufficient oxygen, but as the carbonic acid gas increases it will get languid, and at length die, as did the victims of the black hole of Calcutta. Fresh air is as necessary to the healthy action of the lungs as sound food is to that of the stomach, and we can no more have properly-vitalized blood without a sufficient supply of the one, than we can be well nourished without a proper supply of the other.

The statistics given to the public by the Registrar-General, and other authorities, have established the fact of the great influence of the vitiated air of low and damp situations in promoting the spread of typhus, cholera, &c.; and the greater mortality from all diseases in that portion of the population who live in crowded districts, dirty and ill-ventilated houses. Dr. Lombard, of Geneva, ascertained that, in "a total of 4300 deaths from consumption, in a population of 54,572, exercising 220 different occupations, the proportion of deaths was double in those who were employed in workshops, to

those who worked in the open air, and the proportions increased as their abodes were close, narrow, and imperfectly ventilated.

Scrofula is one of the diseases which is, to a certain extent, preventable by human means; it abounds in damp and close situations, more especially among a population breathing vitiated air, and living on poor or unwholesome diet. You may cause the development of tubercles in any animals, by shutting them up in cellars, and keeping them on a small quantity of bad food. Most of the animals of zoological gardens die of tuberculous diseases, or scrofula. Mr. Carmichael, in his work on this disease states, that he found it to prevail extensively in the Dublin House of Industry. In one ward, sixty feet by eighteen, there were thirty-eight beds, with three children in each. The matron said, "there is no enduring the air when the doors are first opened in the morning," and the air they breathe by day is little better, many being confined to the room they sleep in, or crowded, to the number of several hundred, in the school-room.

If no immediate and obvious effects result from neglecting the laws of health, people in general come to the conclusion, that they can continue indefinitely to defy all attention to rule. However, sooner or later, we suffer the punishment of our disregard. Confinement to the house, in hot and ill-ventilated apartments, undermines health, by the gradual process of a small daily deterioration of the blood, until it arrives at a condition favourable to the generation of tubercle; frequent colds recur,

and tubercles are deposited in the lungs. The mischief goes on accumulating by slow degrees as the same habits of life are persisted in, until the changes are so great, that no alteration in the mode of living can have any effect, and thus are our bills of mortality fed with some of the numerous victims of consumption, constituting one-fourth of the whole number of deaths. Many of these cases might have been prevented by attention to the laws of health; more than half of those which have come under my own personal knowledge have been traceable to sedentary life in hot rooms, during the period of growth, impure air, improper food, want of attention to purity of skin, intemperance, and other preventable causes of bad health.

Every means should be adopted to render the atmosphere of houses, rooms, churches, and other places where many congregate, more pure. Fires and lights, as well as pulmonary and cutaneous exhalation, render the air impure. In the usual period of church service, a large congregation will exhaust the greater part of the oxygen of the air, 1000 persons requiring in one hour 4000 hogsheads of air. It is not the heat altogether which obliges so many to leave churches and crowded meetings, but the impurity of the air; and, with all our experience, few public buildings are well ventilated. When the public are thoroughly well-informed on this subject, probably some efficient system of ventilation will be discovered. At present, we must either suffer from impure air, or be blown away by draughts. Most of the vaunted systems of ventilation have been failures; for, instead of

the heated and consumed air going out at the place appointed for this purpose, the cold air from without rushes in. Doors, windows, broad passages, and stair-cases, are still the best ventilators. The introduction of gas into churches, &c., renders ventilation still more necessary. In the intervals of church service, how rare it is to open the windows ; and what little change of air might occur from the doors is carefully prevented, by having them double.

The health of children in schools would be much benefited by keeping them at their tasks for shorter periods, and taking advantage of the intervals for ventilation ; those who are shut up in a school-room do not perceive the condition of the air, but any one going in fresh cannot fail to experience the depraved condition of its atmosphere ; and the pale faces of the children indicate the effect of too much confinement. Of late years, and especially in America, the system of frequent alternation of study and relaxation has been adopted in schools with the greatest advantage ; the health is better, and the mind more fit for study. Sitting too long at study is the cause of indifferent health of both sexes, but more especially of girls ; for there is no reason why girls should not be as healthy as boys ; and the great difference can only result from greater confinement and insufficient exercise.

In the last century, the mortality among the children born in the London workhouses was frightful, 2590 dying out of 2800 ; a law was then made, and is still acted on, by which every parish is obliged to send its

pauper children into the country. The immediate effect was, that only 450 died out of the same number. There are many occupations which are very unwholesome, the makers of looking-glasses—cutlers, &c., inhaling very minute portions of the metal in which they work ; but statistics have proved that those among such workmen who live in the country extend their lives to double the age of those who live in towns. The diffusion of knowledge on this subject, and the adoption of counteracting influences, have increased the average duration of life, in some unwholesome trades, from ten to twenty per cent.

Full expansion of the chest is equally essential to health as good air, for if, by our clothing or constrained position, we impede the full expansion of the lungs, healthy respiration is prevented, and the due purification of the blood impaired. Whatever compresses the chest or the abdomen impedes respiration, and, therefore, pressure from dress, bands, or stays, must always be bad. How is the chest of a girl to expand with growth, if encased in these horrid inventions? No girl should wear stays till she has long done growing, for the chest continues to expand after growth has ceased ; by the use of stays, the size of the chest is limited, and the ribs are actually forced to overlap, as I have seen in several instances. I question if any woman would really require stays before the age of thirty-five or forty,—the best figures of ancient and modern times have never worn any stays. We have dismissed the swaddling-clothes of our infants, and we shall succeed sooner or later in annihilating stays for girls and young women. None would wear them if

they knew how much better they would be without. After having been accustomed to the support, it is very difficult to discontinue their use, because the muscles of the spine, having been superseded in their action by the barbarous pieces of iron, bone, or wood of these body-cases, have lost their power of maintaining the body in an upright position, and without stays the deformities produced by these machines become visible. I hope the time will arrive when stays will be considered antiquities of the mediæval ages, and be only preserved as relics to adorn the museums and halls of the curious.

It is a law of health that we should every day be in a position to empty the whole of the lungs, and by rapid and frequent dilatation of the chest change the air they may contain; hence the benefit of strong and active exercise; boys do this for themselves in their games, but the dreaming walk of a girl's school produces no such beneficial influence. Exercise is as necessary for the development and health of the lung, as it is for all other organs, therefore singing and declamation are beneficial. It has been observed by an ingenious writer, that exercise not only ameliorates living matter, but dead matter also, violins, flutes, and other musical instruments, improving by use. Players on wind instruments are generally healthy men, and there is no doubt that the law of health, which teaches activity of every organ of mind and body, is equally applicable to the lungs. The appetite and spirits produced by mountain air arise from the great activity

imparted to the breathing from climbing, and to the mind from the frequent change of scenery. Residence in such a district imparts to the whole population elasticity of mind and vigour of body, and we should naturally expect the formation of a national character totally different from that induced by the monotony of a flat country.

I cannot close the subject of respiration and ventilation, without noticing the great mischief produced on the health of many families, from sitting a whole evening in what is considered a warm, comfortable room. At dusk, the window-shutters are closed, the curtains drawn, every aperture for fresh air carefully sealed up, a large fire made, perhaps a large Argand lamp or gas burning, which, with six or eight pair of lungs, soon consume all the oxygen of a good-sized room. Before the party retire to bed, you may easily comprehend how impure the air must have become. The injurious effects of breathing night after night, for six or eight hours, the heated and contaminated air of such a room cannot be exaggerated. Headaches and languor are early symptoms; colds, coughs, and sore throats are frequent, caused by the very great change from such a stewpan, to a cold staircase and bedroom, where the whole surface of the skin, which has just been preternaturally heated, becomes chilled, inducing internal congestion of blood.

I think some cases of phthisis may be thus produced, in constitutions predisposed to tubercle. Whole families of girls are thus carried off, not always as girls, but, more

melancholy still, a few years later as mothers, the boys escaping, because they are necessarily more in the open air, and away from home on business or pleasure. There is no more frequent or more mischievous cause of bad health than sitting a long winter evening in a confined, close, hot, and comfortable room.*

* The numerical statements on the subject of respiration are chiefly from the works of Dr. S. Smith and Dr. A. Combe.

LETTER VI.

ON THE SKIN AND ITS FUNCTIONS.

MY DEAR F——,

THE skin consists of three layers. 1. The cutis, or true skin ; 2. a thin web-like structure, which in the negro can be demonstrated as the seat of colour ; and, 3, the cuticle or scarf-skin, a more or less transparent pellicle, which protects the delicate structure below, without interfering with the functions of the true skin,—it is constantly wearing away, and is as constantly renewed. The sense of touch, which resides in the true skin, is not impaired by the cuticle, although in itself insensible. It is the cuticle which is raised in a blister, becomes thickened by work and pressure, and in some parts hardened into corns. Those qualities and functions we are to describe, reside in the cutis or true skin.

The skin is most liberally supplied with vessels and nerves ; you cannot prick the surface with the finest pointed needle, without wounding both. The papillæ, in which reside the sense of touch, and the exhalents from whence the perspiration issues, are very numerous, and

there are also some absorbents on the surface. The point most important in our inquiry is, the very large number of exhalents, for the greatest injury occurs to health from impeded action of these vessels. In the greater part of the population, we may safely conclude that at least half of these outlets are inoperative, so few are there who wash the whole surface of the body at all; while a still smaller number, by daily ablution, keep the whole surface of the body and limbs properly cleansed. I believe there is no one adjuvant to health so important as maintaining the pores of the skin in a free state. I have elsewhere pointed out the example of our horses for imitation. Every groom knows that a horse is not in condition unless his skin is loose, shining, and soft; and he spares no pains to effect this object. With this knowledge of what is health to the horse, how rarely do those who are well acquainted with the fact, apply the law to themselves,—their own skins may be hidebound, hard and dirty,—their health perhaps not over good,—all which might be corrected by applying to the human skin the same laws of health which experience has shown applies to that of the horse.

There is constant desquamation taking place from the skin,—ablution and friction become necessary to remove the particles, which have a tendency to adhere and block up many of the pores. There is no better index of health than the skin; it should be in all parts of the body supple, loose from the underlying textures, so that you can easily raise it in a fold, and move it over the muscles beneath. If the skin was daily well washed,

rubbed, and brushed, many of those horrible skin diseases, which are now so prevalent, would less frequently be met with. When attention to the health of the skin has been neglected for many years, it is a very long process to restore it to a healthy condition; and this can only be effected by great perseverance; even by daily free ablution and friction, you will not succeed in effecting this desirable object for many months; and I have known years of strict attention to rule elapse before the whole surface could be pronounced healthy. But whatever may be the time or the trouble, perseverance brings an ample recompence in the feelings of healthfulness, activity, power, and cheerfulness, that result. The obvious improvement in health, which invariably follows daily ablution and friction, is such, that we may almost say no one can be in bad health who has a skin in perfect condition.

Exhalation from the skin never ceases. There is always an insensible perspiration, which has been estimated by different physiologists from thirty to sixty ounces in twenty-four hours, varying, of course, according to the variations of temperature. The whole surface of the skin has been estimated at 2,500 square inches, and may exude more fluid than the kidneys and bowels together. Of sensible perspiration, a man at hard work, or exposed to very great heat, may lose five pounds in an hour. These facts tell us what may be the effect of chilling the surface by cold, and checking even the insensible perspiration; the first effect must be to increase internal circulation, and throw more blood and more work on the

internal organs. Thus, checked perspiration continuing for some hours, may induce inflammation, diarrhœa, &c. All the organs which assist in relieving the system of waste matter, sympathize closely with each other, and at times one organ relieves another of its usual duty; when the pores of the skin are closed, and cease to relieve the system by their usual exhalation, the secretions of the kidneys, the lungs, or the bowels, may be increased as a compensation. This increase of action in health is not detrimental; but if any of these organs are unsound, the frequent repetition of extraordinary labour will necessarily induce disease. In a hot room, and in hot weather, the skin will be most active; in cold weather the kidneys will separate most fluid from the blood.

We may, from these facts, infer the great importance of keeping the pores clear, and there is, probably, no more frequent cause of disease than the cessation of healthy transpiration from the skin, and which should always be increased to perspiration once at least in twenty-four hours, by active exercise. If we neglect to exercise the body, we impose more work on the delicate membranes of the lungs. Those who sit quietly at home all day, cause their lungs to do more work in the necessary exhalation of fluid from the body, than if they took sufficient exercise to increase transpiration from the skin. The regulation of animal heat is another most important function of the skin; this power enables man to adapt himself to all climates from the Frigid to the Torrid Zone. We all know that whatever increases animal heat, whether exercise or hot weather, also increases per-

spiration from the skin, and exhalation from the lungs, thus relieving the body from excessive heat : in the dog, and some other animals, the whole relief is from the lungs.

In moist and hot weather, the atmosphere being loaded with damp, transpiration from the skin does not go on with sufficient rapidity to afford comfort and ease to the frame ; hence the feeling of languor and oppression under these circumstances. In climates where such weather prevails, there is much sickness, and similar weather in all countries is the most unwholesome. In this condition of the atmosphere malaria and other poisons which affect the body, are held in solution by the hot and moist air, and are of course more readily absorbed than they could be in a dry atmosphere ; for when the air is dry as well as hot, free evaporation occurs, and whatever poisonous exhalations exist are rapidly floated away. In a damp atmosphere exhalations from the earth are always abundant ; hence the prevalence of disease in muggy weather, and its absence in dry. The particles of miasma require moisture as a vehicle ; every sportsman knows how much better the scent is on a damp morning.

When we insert under the outer skin, the cuticle, a minute portion of vaccine lymph, absorption occurs and cowpox is generated,—the same process takes place in poisoned wounds from the splintered bones of putrid game, &c. But without a wound there is some degree of absorption from the surface of the cuticle. Some miasmata would appear to enter by the skin, for it has long

been observed in all countries, that persons engaged in such occupations as necessarily cause their skin to be always covered with oil or grease, are the least susceptible of the poison of plague, &c. The reason for wearing flannel next the skin may be explained on these principles of absorption and exhalation. Woollen promotes transpiration, and opposes absorption, by maintaining the skin at a high temperature, for while it is rapidly exuding fluid, it is not in a condition for absorbing poison.

The whole surface of the skin is covered with nervous papillæ, which are not only necessary for the sense of touch, but for our very existence, for they give us warning by pain, of circumstances which would be detrimental to health and life. We not unfrequently meet with cases of paralysis, in which the arms and legs are so insensible, that a man thus afflicted may put his foot into very hot water, and only discover the great temperature by finding the surface completely blistered. The painful impression of cold warns us to keep up the temperature of the body by exercise, or additional clothing. The healthy action of the skin is known to us by an agreeable pleasing warmth, which imparts to the whole system vivacity and comfort, while languor and depression take place when the skin is impeded in its action.

From the structure and functions of the skin, we may infer the laws by which it may be retained in a state of health, and by its own healthy condition, impart healthy action to other organs. We must maintain circulation and warmth by exercise,—regulate the proper

degree of exhalation by suitable clothing, and remove from its surface the residue of its secretions by bathing and friction. Unless we attend to these rules, the skin may become hide-bound, its pores closed by condensed perspiration, the debris of clothing, and other extraneous matter, and the surface, instead of being soft and smooth, becomes hard and rough. Many diseases are engendered, and others are aggravated by this state of the skin ; but, on the contrary, if we keep up a comfortable temperature by exercise and clothing, and maintain the purity of the surface by frequent bathing and friction, we place ourselves in the best condition to resist the influence of cold and miasmata, and to preserve a very high degree of general health.

Moderate cold is beneficial to health, but there is no greater mistake than to suppose that children and weakly persons are hardened by wearing light clothing and sitting in cold rooms. Continued cold of the surface and the extremities should be carefully avoided ; the immediate effect is to concentrate the blood in the internal organs, leaving the surface pale and bloodless. Such a state cannot continue without danger, and many cases of pulmonary consumption are aggravated by, if they do not depend upon, the frequent recurrence of colds, engendered by inactivity of body, and neglect of maintaining a proper temperature of the skin by warm clothing. It is unnatural and injurious that the body or limbs should remain in a chilly state for hours together ; this should always be prevented by exercise in the open air. It is better to keep the feet warm by exercise than

by the external application of heat; but any artificial means are better than to allow the extremities to remain cold.

Proper clothing is essential not only to the health of the skin, but of the whole body. The advantages to be sought are lightness, a capacity for retaining warmth, or the property of being a bad conductor of heat, and a texture sufficiently open to admit the free passage of perspiration. Flannel combines all these requisites; it prevents the quick diffusion of animal heat, and thus protects us from sudden changes of temperature; its porous nature permits it to absorb transpiration, and to conduct it freely outwards. It is against the cold of winter and the sudden changes of spring and autumn, that soft woollen to the skin is so serviceable; but even in summer it is advisable to wear it, though it may be lighter in texture. Our summer evenings are often very chilly, and many a serious cold is caught from too light clothing, after a very hot day; but if we have flannel next the skin, we are in great measure preserved from sudden falls of temperature. The advantage of wearing flannel, even in hot climates, has been settled by the combined experience of the most intelligent observers in both navy and army. The wearing of flannel shirts and drawers, and keeping the lower decks of a ship very dry, have been the means of preserving the health of the crew of one ship, in a climate where others, neglecting these precautions, have suffered much from sickness. Those who experience irritation of skin from flannel should not at once cast it away, but endure the incon-

venience for a few days, when it generally subsides. The advantage of flannel partly depends on its roughness, which in every motion of the body gives gentle friction to the skin, which is very beneficial.

Sir James M'Grigor states, that in the Peninsular war the best clothed regiments were always the healthiest. In India the second battalion of the Royals was suffering exceedingly from dysentery, which was at once checked by supplying the men with flannel. Similar evidence abounds in both services. The Valorous, after two years service on the coasts of Labrador, was ordered to the West Indies. Captain Murray directed the supply of two extra flannel shirts and drawers for each man, and took care to see that they were worn. With a crew of 150, he was in all parts of the West Indies, and returned to England without the loss of a man. The use of flannel had something to do with this ; but the captain also put into practice other laws which were important to the health of his crew. He had his decks scrubbed with hot sand, and kept the between decks dry and wholesome by the warmth and ventilation produced by the use of stoves.

In passing from cold to heat, or from heat to cold, we should not expose the skin to too rapid changes. When we get suddenly into a cold stratum of air while the body is hot from exertion, we should continue in motion, that our animal heat may not be dissipated. It is a great mistake made by some good mammas to keep their daughters sitting to get cool after dancing, before leaving the room : of course it would be unwise to go

out on a cold night in a profuse perspiration. With plenty of wrappings it is, however, best to leave before the body is by any means cool, but still warm enough to maintain animal heat in the transit home. In all the northern expeditions it was imperative, not to go out of the ship into the air, unless the body was positively warm by the artificial heat of the stoves on board. The warmer the men were on going out, the better they could resist the cold, and the longer sustain work or exercise.

LETTER VII.

ON THE BRAIN AND ITS FUNCTIONS.

MY DEAR F——,

THE brain and its adjunct, the spinal cord, distribute, by the medium of the nerves, that influence, without which there would be neither sensation, muscular motion, secretion, nor any other vital action. The nerves pass from the brain, or spinal marrow, to all parts of the body, becoming ultimately as much subdivided as the arteries and veins; they are distributed to every point of the surface, to every muscular fibre, and to every part of every organ. Nervous influence passes from centre to circumference; the mind wills that a certain muscular effort should be made, and, by the nervous force transmitted to the requisite muscles, the desired action takes place. Sensations pass by the nerves in the opposite direction, from circumference to centre, giving information to the sensorium of all that occurs to the body.

The nervous influence, transmitted from the brain and spinal cord, is essential to the performance of all the

functions ; every organ is supplied with nerves, which carry this directing force. The heart requires nervous power to excite its action ; and there is, between this organ and the brain a mutual reciprocity of influence, by which they work, as in a circle. Thus the due supply of healthy blood to the brain is necessary, to enable it to send to the heart such an amount of nervous force as will maintain a continued regularity of action, without which again the requisite quantity of blood could not be sent to the brain.

If the mind is kept in a very active state for a long period, and the brain be too much exhausted by mental labour, all the other functions of the body are seriously damaged from the diminished supply of nervous influence. Long-continued study, or mental application, exhausts so large an amount of nervous force, that enough is not left for the due stimulus of the other organs, and health may thus be seriously impaired. The mind itself soon becomes a sufferer, and the nutritive organs are rendered incapable of sending into the circulation blood fit for perfect nourishment of the body.

There is a limit to mental as well as to bodily exertion ; both, carried to excess, exhaust and wear out the individual. This is one example of the harmony of action and mutual adaptation of all parts of the body. Every human power and faculty, properly used, helps to maintain the health and strength of the whole system ; improperly used, it impairs the power of its own and of all other organs. Bodily exercises tend to promote health and strength ; but carried to excess, will wear out

the power of renovation, and exhaust the strength of the most powerful constitution. Nature seems to point out that bodily and mental exercise should alternate, the too exclusive employment of either being injurious. Where the body has been overworked, there is neither inclination nor power for mental exertion, and it is necessary to refresh and invigorate the system by food and sleep, in order to restore the exhausted nervous force. Where the mind is overtaxed, and little or no relaxation or exercise is permitted, the digestive organs soon give way, and some form of dyspepsia is engendered. Healthy nutriment is not supplied; the body becomes weak; and the individual at length incapable of taking the necessary exercise to maintain health.

The brain is the seat of instinct, affection, volition, emotion, and the instrument by which the mind perceives, thinks, and communicates its ideas and its desires. In descending from man, through the mammalia, birds, reptiles, fishes, to the invertebrate animals, we find the mass of brain gradually diminishing, until, at last, it becomes a mere enlargement at the commencement of the nervous system. As intelligence increases in animals, so does the size of the brain increase, and its desires and volitions harmonise with its structure: in all animals the centre of the nervous system is in exact accordance with the corporeal powers. In each class the brain must be suitable to the condition of the animal; and as instinct, volition, &c., differ, so must the brain differ. Man, gifted with faculties of a higher nature, has a larger brain than other creatures. Some philosophers

have supposed that man owes his superiority to the possession of such an instrument as the hand ; but the hand would be useless without the mind to direct it ; and the physical organization of man is so superior to that of other animals, in order that it may harmonise with that superiority of mind which God has given him. As the instruments by which man carries out his volitions are superior to the instruments possessed by other animals, so is his brain, which, as the instrument of a superior intelligence, is in its size and structure larger and more complicated. The instincts and the instruments are just adapted to each other : if the ox had the hand of man, it would be useless to him, with the brain he now possesses, which is in keeping only with his peculiar structure.

The brain is the seat of the nervous influence ; the nerves communicate with all parts of the body, and the senses, the nerves, and the muscles, are the instruments by which the brain acts : these parts constitute the animal functions, being peculiar to the animal kingdom, while the functions of nutrition, respiration, and circulation, are termed organic, being possessed by vegetables as well as animals. The external senses convey information to the brain through the nerves ; the brain is the instrument by which the mind wills, and through the nerves excites the action of such muscles as are necessary to execute its desires. Of the precise nature of the influence transmitted from the brain along the nerves, and from the external senses through the nerves to the brain, we are entirely ignorant. It has perhaps some

analogy to electricity or galvanism. Division of a nerve paralyses the part which the nerve supplied, yet the part may be made to act after the division of its nerve, by the stimulus of electricity. For a short time after sudden or violent death, every muscle in the body may be thrown into action by galvanism.

Whatever may be the power transmitted by the nerves, our comfort, mental and physical, greatly depends on their due action in accordance with a healthy condition of the central nervous masses. Mental disturbance, or violent emotions, operate on the organs to which nervous influence is directed. Every one knows the effect of a piece of bad news in destroying appetite and digestion. The exhaustion produced by excessive application to literature or science, or whatever taxes the mental faculties overmuch, is followed by similar effects. What are called nervous disorders, arise from some injurious modification of the central masses, or of the transmitting powers of the nervous system. Useful occupation and moderate pleasurable excitement stimulates our nervous energy, and increases our digestive and muscular powers. Cheerfulness and elasticity of mind are generally accompanied with activity in our nutritive and organic functions: hence their value on health and longevity. Mental and moral apathy are as injurious to the welfare of our bodily frame, as excessive excitement of our intellectual faculties. "*In medio tutissimus ibis*," is a maxim most important in that mental and moral training, which should continue to be the work of our whole life. Excessive application to study, or the predominating influence of any unre-

strained appetite or passion, are equally productive of bad health. Many nervous disorders have their origin in the want of useful occupation, and that vacancy of mind in which numbers of the wealthier classes of society pass through life in one unceasing round of selfish, sensual, or idle pleasures : hence misanthropy, hypochondriasis, and dyspepsia. We cannot too often repeat that man was destined for active, useful employment of mind and body, and that such employment is essential to his health and happiness.

Hereditary constitution is a primary and most important cause of bad health both of body and mind. We see every day not only bodily disease transmitted from generation to generation, but peculiarities and eccentricities of mind. The health of the brain is also dependant on that of other organs ; unless digestion and respiration perform their duties, neither can the brain. If the blood is not duly supplied by the organs of nutrition with new particles, or insufficiently oxygenated by the process of respiration, the functions of the brain will be impaired. The listlessness, languor, want of power, and the feelings generally described as nervous, arise from imperfect stimulus to the brain produced by imperfect nutrition, or oxygenation of the blood. Sedentary occupation, and want of good air, are often aggravated by want of good nutriment, necessary to the production of healthy blood. Weak powers of digestion operate injuriously on the brain by the ill concocted chyle sent into the stream of blood. Thus, the laws of health dependant on air, exercise and diet being neglected, the brain and nervous

system suffer in consequence, and the disturbance of these organs reacts on the nutritive functions, by impairing their supply of due nervous energy; a vicious circle is thus established, which cannot fail to maintain a state of bad health.

Want of relaxation is another prolific cause of disorder in the brain and nervous system; this occurs wherever the mental functions are over-taxed, whether in schools, counting-houses, offices, courts of justice, or houses of parliament. Dyspepsia is the never failing consequence of an over-worked brain: it is common enough in England; but in America, where the spirit of enterprise is even greater, and where the folly of forcing the young mind to tasks beyond its power is carried to excess—where political and religious excitement exceeds all our old-world experience, there dyspepsia has established its dominion over all classes. Mental activity is a law of our nature favourable to the health of both mind and body; it stimulates the nervous energy, accelerates the circulation of the blood, and indirectly promotes digestion and nutrition; therefore, physical and mental education, conducted on right principles, promote health by the activity imparted to all the organs of the body.

Accidents, exposing a portion of the surface of the brain, have afforded opportunities of watching the effect of various influences on this organ. A case is described by Sir A. Cooper, where a portion of the skull above the eyebrow was lost. "The pulsation of the brain was usually regular and slow, but if the patient was aggra-

vated by opposition to his wishes, the pulsations became frequent and violent." In similar cases, where portions of the skull have been destroyed, the brain appeared to be nearly tranquil in sleep, unless it had been disturbed by dreams, when it would be seen in great agitation, and even protruded through the opening, which would also occur in active thought or interesting conversation. If a muscle is never called into action, it loses its bright colour, becomes pale, and wastes; if a limb, from paralysis or other cause, is disused, it becomes thinner and smaller than natural. In an excessive degree, a part, from total inactivity, may become at length useless. In a minor degree all parts of our bodies which are little used, lose their active circulation of blood, and become inefficient in a degree proportionate to our neglect of them. The brain becomes torpid and incapable from inaction, like the muscles. On the other hand, we daily see the effect of muscular exercise in the arms of a smith, or the legs of a *danseuse*, and the same law applies to the brain; its power is increased by active exercise. How often it has been observed that men enter the House of Commons so powerless in speech as to be, at first, incapable of giving utterance to the simplest ideas, who, by practice, become tolerable speakers and ready debaters. Every writer will tell you how much more readily his pen runs over his paper by practice, and how rapidly his ideas flow the more he exercises his mind in composition. To preserve the mind in health, we must apply to it the same law which we all adopt, as far as our body is concerned; we must keep our brain appro-

priately, actively, and usefully employed, remembering that excess, both of exercise and inactivity, are equally pernicious ; and that we should never urge either mind or body to the extent of fatigue. The necessity of active mental employment explains the horrible effects of solitary confinement, and the frequent wretchedness of those who, from an active life of mind and body, put into practice the disappointing dream of the pleasures of retirement.

Excess of mental labour, and long continued excitement of the intellectual and moral faculties, bring in their train indigestion, imperfect chylication, ill-conditioned blood, and defective nourishment of the brain, as well as of other organs. Hence the catalogue of nervous, hypochondriacal, and hysterical disorders in all their protean forms, which often render life one long disease. Even the brain of a Scott would not bear unlimited employment ; like many literary men, he fell a sacrifice, a most noble one we must admit, to excessive intellectual exertion. How many valuable lives might be saved were the laws of health, and the physiology of the animal frame known, as they ought to be, by all classes ! Education will not be good until self-knowledge, both of mind and body, forms part of it ; we learn about everything and everybody, but ourselves. We study general history ; but individual and personal history, the most important to our happiness and welfare, we utterly neglect. With what untiring zeal means are devised to improve the breed and the condition of our dogs, horses, sheep, and cattle ! We put

into practice the laws of health as applicable to the welfare of these animals, while we neglect them in regard to the nobler animal, man. Surely, in a well-ordered state, means should be taken to instruct the people in the knowledge necessary both for mental and bodily welfare.

LETTER VIII.

THE BRAIN CONSIDERED IN RELATION TO THE FACULTIES OF THE MIND.

MY DEAR F——,

HAVING taken a general view of the physiology of the brain, we will proceed to examine some of its functions, as the instruments of the intellect. If we have any identity, it is in our mind; the body is ever changing—probably there is not in the matter now composing it a single particle that entered into the composition of any portion of us ten years ago, and we know that death will soon resolve our corporeal organs into their constituent elements. Not so our mind—it is the same, with additions, as that which constituted our personality ten, twenty years ago—

“ Which must burn on for ages, where the sun,
Fair transitory creature of a day!
Has closed his golden eye, and wrapt in shades,
Forgets his wonted journey through the east.”

The nature of mind is encompassed with much obscurity, and but little real progress has been made in our

knowledge on this subject. Has not this been the necessary result of the manner in which mind has been studied? In all other sciences we observe nature, and gather observations and facts before we generalize; but it has been the custom in mental philosophy to arrive at conclusions, from meditations on the operation of the individual minds of the philosophers themselves. The phrenologists have taken another course for acquiring a knowledge of the human mind. They have made observations on the minds of large numbers of men, have analysed the various faculties, have compared the operations of the same faculties in different individuals; they have examined the mental characters of eminent men of all nations, have dived into the sources of human action, and have thus arrived at many conclusions, founded on a knowledge of human nature. The writings of phrenologists have much modified opinion on the subject of mind, even of those who will hardly allow them any credit. Although much objection may be made to the details of phrenology, and the division of the surface of the brain into numerous organs, the general principles are extensively admitted. I believe nearly all observers connect the anterior lobes of the brain with the higher intellectual faculties. In all civilized countries, we find individuals with high or broad foreheads, taking the lead in science, morals, politics, and philosophy. The Greeks must have observed the connexion between intellect and a well developed forehead, or why, in their busts, should they have even exaggerated the fact, when they wished to express the highest faculties of mind?

Jupiter, Minerva, &c., are always represented with high foreheads and commanding brows; while Vulcan, Pan, &c., have narrow, small, and mean heads. The paintings of the best masters give evidence of the same observations—the heads of Christ, and the Apostles, are generally represented with high foreheads. Judas, in the “Last Supper” of L. da Vinci, has a low forehead, and the idiot, in Raphael’s “Transfiguration,” has a very small head.

The authentic portraits of men of genius and virtue represent the anterior and upper parts of the brain greatly developed. Men notorious for their vices, ignorance, and brutality, have heads in which the anterior lobes of the brain are small, although the head itself may be large, from the great preponderance of those parts which are the seats of the animal propensities, selfish appetites, and brutal passions. Every body is, to a certain extent, a believer in phrenology; all admit the brain to be the organ of the mind, the seat of the moral powers, and of the instincts or animal propensities. There appears no great improbability in the farther belief, that the respective faculties are placed in different localities of the brain, and that the comparative size of the different parts denotes the relative power of the faculties. It is difficult to treat of the healthy, or diseased state, of the various functions of the body, and their connexions with the mind, without reference to some theory of the mental powers, and I trust I shall explain my own notions sufficiently, to render what I have to say intelligible.

There is some reason to believe that the brain is a compound body, consisting of a congeries of instruments, by means of which the various faculties of the mind perform their peculiar functions. There is nothing improbable in the supposition that different parts of the brain are employed in the several studies relating to mathematics, music, language, or metaphysics. This is practically admitted and acted on by experienced scholars, who never apply too long to any one science, or branch of literature, but when they find the faculty they have been exerting getting tired, they turn to another subject, and allow that part of the brain which has been fatigued to recover itself by repose. If the mind employed the same instrument for all inquiries this would not happen, if the whole brain had been fatigued, the whole brain would require rest;—the inference appears legitimate, that if the mind applies itself to history, it uses a different portion of the brain as the instrument of its inquiry, to that which it would employ in the study of mathematics; if from these it turns to music, it employs another instrument or internal sense. It is quite certain that the unemployed faculty rests while the mind may continue active on a different subject.

Many who are not phrenologists are disposed so far to agree with them, as to admit that observation has proved the intellectual and knowing faculties to be placed in the anterior lobe of the brain,—that the moral sentiments and powers are seated in the upper part of the brain,—and that the instincts, affections, and propensities, which we possess in common with animals,

are in the lateral parts behind the ears, and at the base of the brain. Perfection of character seems to depend on a due relative proportion of all the faculties. Without some development of our animal propensities the character is irresolute and feeble; it is the duty of the higher moral and intellectual faculties to hold these in abeyance, and only employ them as agents.

There is accumulating evidence that, in proportion to the active employment of particular faculties, there is increase in size of particular parts of the brain. If the intellectual and moral faculties are well trained and instructed, you will observe the anterior and upper parts of the head larger than when education has been neglected. Where the animal propensities have been allowed free indulgence, the base of the brain will be large, and may be known by the thickness and breadth of that part of the head which joins the back of the neck. Every one who will observe for himself must come to the conclusion, that these general facts are corroborated daily; and many good observers connect a large development of the anterior, upper, or lower part of the brain, with corresponding power of the respective faculties of intellect, morals, and animal instincts. The tastes and inclinations will be found to agree with the development of certain parts of the brain, and the general principle of increase of size from exercise applies to them as to all other organs. All the faculties improve by cultivation, and they are all enfeebled by over-work; hence the wisdom of alternating different studies, and of allowing one faculty, when fatigued, to repose by employing

another ; and this is practically carried out in schools, by varying the subjects of attention from language to mathematics, to drawing, &c.

The brain may be the instrument or organ of the mind, yet the two may not be identical : as the eye is the instrument of sight, although it does not itself see, so the mind may be immaterial, performing its volitions by means of material instruments—the organs of the senses, the nerves, and the brain. Or the mind itself, in our present state of being, may be the result of powers given to the substance of the brain ; for we can conceive nothing to be impossible to Almighty intelligence, although totally beyond our comprehension, as we must admit to be the case when we attempt to soar beyond the confines of matter. It is difficult to conceive that the brain itself can think or reflect, but that it is the connecting link between matter and spirit there can be no doubt ; its substance is *sui generis* ; we have no other structure of the body at all like it. In our examination of it, we give names to various parts without having any exact idea of the respective uses of many of them. From frequent observation of the state of the brain in cases of paralysis, we have come to a conclusion that one part of it is peculiarly connected with muscular motion. But in old cases of insanity, in various diseases where we have expected to find altered structure in the brain, we have been so generally disappointed, and have so frequently discovered nothing appreciable to our senses, that we must bow in

humble ignorance of the exact duties performed by this important organ.

There is also reason to think that different parts of the brain perform different functions; as animals ascend in the scale of instinct and intelligence, new parts are added to its structure, these additions being probably the instruments of the new functions and faculties. In man, the chief additions are—a great increase of size in the anterior and upper parts of the brain, and the presence of deeper and larger convolutions all over its surface; may we not, therefore, infer, that these are the parts of the brain which give to man those superior qualities of mind in which he surpasses all other animals. Among men, again, we find very great differences in the size of the brain. It is very small in the idiot—larger in the uneducated peasantry of a wild country, increasing in size with civilization and education—and is of the largest dimensions in men of the highest range of intellect. We also find the most remarkable differences in the relative size of various parts of the brain. From all these circumstances—the large size of the organ, its division into many parts, and their great variety of form—may we not consider that different parts of the brain perform different functions, and that it is highly improbable that the whole of the brain should be in action at one and the same time, with every act of thought, or volition, or other mental operation. May we not conclude that, however single may be the personality of

the mind as a whole, it acts by instruments, or faculties, placed in particular localities of the brain? Is there not great probability that the whole surface of the convolutions is the medium of the perceptive faculties, or internal senses, designed to receive and prepare knowledge for the mind? If we admit that one part of the brain does operate exclusively in one direction, as the anterior part for perception and causation, the upper part for religion and morality,—if we admit that one faculty, or a system of faculties, are located in a particular part of the brain, we recognise the fundamental principles of phrenology.

If the faculties which enable us to compare objects and ideas, to perceive the relations of cause and effect, have their instruments in the anterior part of the brain, there is equal probability that every other important faculty of the mind shall have a local instrument in the brain. Every relation in which we stand, to our Creator, to our fellow-men, and to the external world, requires an instrument of conception and communication between our personal unity or consciousness, and all things exterior to us; but these may be only instruments, like the eye and the ear. Hence, there is no absurdity in supposing that the whole surface of the brain may be a congeries of organs or instruments of our various faculties, each receiving impressions corresponding with its innate power, and transmitting its perceptions to the mind.

The existence of these organs in different ratios at birth, seems to account for the great diversity of talent

exhibited by children. Dr. J. Johnson has observed, that if the mind of a child is to be compared to a sheet of white paper, there will be papers of very different textures, some being like Bath post—some, foolscap—and some, blotting paper. According to the kind of tablet, so will be our inscription on the mind; as it is differently prepared for us, so will there be difference in the nature of our inscriptions. The same information will produce different impressions on different minds, according to the original or innate difference of power in the respective faculties. “*Nascitur non fit*,” may be applied to every kind of talent, as well as to poetry: if our ideas did not depend on some innate power, why should the same colour appear different to different sensoria? Why should resemblance of objects appear more striking to some than to others? Why should one mind have a greater facility than another for acquiring language, music, or poetry? The powers are innate, but they must be developed by the relations of our senses with the world without us.

The gradual recovery of faculty after faculty, the restoration of formerly acquired knowledge, and the recurrence to the memory of circumstances which had been lost after accidents and fevers, appear to me corroborative proofs of the separate existence and independence of our various mental powers. Dr. Rush mentions an American student, of considerable attainments, who, on recovering from a fever, had lost all his acquired knowledge. When his health was restored, he again began the Latin grammar, had passed through

the elementary parts, and was beginning to construe, when one day, in making a strong effort to recollect a part of his lesson, the whole of his lost impressions suddenly returned to his mind, and he found himself at once in possession of all his former knowledge. Dr. Abercrombie says: "In slighter injuries of the head, with loss of recollection, we observe the circumstances recalled gradually in a very singular manner. A boy fell from a wall, and struck his head on a stone at the foot of it. He recovered from a state of insensibility without any recollection of the accident. After a short time, he remembered that he had struck his head against a stone, but had no recollection how he had come to do so. After another interval, he recollected that he had been at the top of the wall, and, falling from it, struck his head against the stone, but could not remember where the wall was. After some time longer, he recovered the memory of all the circumstances."

A country surgeon was thrown from his horse, and was taken into a neighbouring house in a state of insensibility. He soon recovered his senses sufficiently to describe the accident, and gave directions as to his own treatment. He requested that he might be immediately bled, which was repeated in two hours at his own request, and he conversed correctly with a medical friend regarding his own feelings and the state of his pulse. In the evening, he was so much recovered that he was removed home, a medical friend accompanying him in the carriage. As they drew near home, on his friend remarking the necessity of not suddenly alarming

his family, he found, to his astonishment, that his patient had lost all idea of having a wife or children. This condition continued during the following day; and it was only on the third day, on repetition of the bleeding, that the circumstances of his past life began to recur to his mind. The late Dr. Gregory used to mention a lady, who, after an apoplectic attack, recovered correctly her ideas of things, but could not name them. In giving directions, she was quite distinct in what she wished to be done, but could only make herself understood by going through the house and pointing out the various articles. A gentleman, after recovering from an apoplectic attack, knew his friends perfectly, but could not name them. Walking one day in the street, he met one to whom he was very anxious to communicate something respecting a mutual friend. After various ineffectual attempts to make him understand whom he meant, he at last seized him by the arm, and dragged him through several streets to the house of the gentleman of whom he was speaking, and pointed to the name-plate on the door.

Dr. Abercrombie also mentions the following singular case of a gentleman, who could not be made to understand the name of an object if it was spoken to him, but understood it perfectly when it was written. His mental faculties were so entire, that he was engaged in most extensive agricultural concerns, which he managed with perfect correctness by means of a remarkable contrivance. He kept before him, in the room where he transacted business, a list of the words which were most

apt to occur in his intercourse with the workmen. When one of these wished to communicate with him on any subject, he first heard what the workman had to say, but without understanding him farther than simply to catch the words. He then turned to the words in his written list, and whenever they met his eye he understood them perfectly.

These and similar cases favour the opinion, that the different faculties have their instruments in different parts of the brain. On the other hand, we must admit the retention of unimpaired intellect, concomitant with very extensive disease of the brain. Cases are on record where one hemisphere has been totally destroyed; this occurred in a lady who had been enjoying herself at a convivial party in the house of a friend a few hours before her death. (Dr. Abercrombie.) Dr. Ferriar mentions a man who died of an affection of the brain, and retained all his faculties entire till the very moment of death, which was sudden. On examining his head, the right half of the brain was found in a state of suppuration. A man, mentioned by Mr. O'Halloran, suffered such an injury of the head, that a large portion of the bone was removed on the right side; and at each dressing large quantities of matter, mixed with brain, were discharged from the opening. This went on for seventeen days, and it appears that nearly one-half of the brain was thrown out, mixed with the matter; yet the man retained all his intellectual faculties to the very moment of dissolution; and through the whole course of the disease his mind retained uniform tranquillity.

Cases are mentioned, where, from injury or disease, a considerable portion of both sides of the brain has been destroyed without any loss of mental power ; but in the best authenticated cases the mischief has been in one hemisphere. The senses and animal powers are all double ; one eye or ear will do its duty after the destruction of its fellow ; and if one hemisphere of the brain remains sound, the mind, having still one set of instruments or faculties to carry on its functions, may thus retain its powers of expression and volition.

LETTER IX.

INSTINCTS.—IDEAS.—PRIMITIVE FACULTIES.

MY DEAR F——,

THE faculties and functions of the brain consist of instincts, affections, volitions, emotions, intellectual and moral powers. Passions are probably the feelings and appetites in excess, and uncontrolled by the higher powers. Love is an instinct: when unrestrained, a brutal passion; but when under the influence of the moral sentiments and intellect, it is the source of some of the best feelings of human nature. To make provision for the future, is an original law of our nature, dependent on a primitive instinct, inducing us to accumulate objects for our future comfort and support; but becomes a passion when in excess, and leads to all the evils of avarice. Ambition is a primitive power of the mind, by which emulation is engendered, and all the virtues developed; it arouses generosity and some of the noblest feelings, but becomes a passion when unrestrained, and leads to actions which debase the individual and degrade the species. Religion is a primitive emotion,

and may become a passion, if unsupported and uncontrolled by intellect ; inducing superstition, and that perversity of mind which has, in all ages, led men to persecute and punish others for what they esteem the glory of God and the benefit of the person whom they torture.

Insanity is too often uncontrolled passion, or the overpowering predominance of the instincts and emotions. The animal instincts or lower feelings, common to man and animals, should be subservient to the higher, or intellectual and moral faculties. Over-indulgence so strengthens the influence of the animal propensities, that men so circumstanced are but little advanced beyond the brute creation. Intellect and virtue can be the only objects worthy a wise man's pursuit. We have been so constituted, that the instincts and lower feelings become instruments for the development and improvement of our moral and intellectual faculties. The social instincts—those of love, attachment to friends, and the spirit of emulation—lead to some of the noblest acts of generosity, self-sacrifice, and disinterestedness.

Experience of the discomforts resulting from over-indulgence of the instincts and appetites, in a well-constituted mind, induces us to keep them under restraint and subjection. Used with due restriction, they promote the health of the frame and the happiness of the mind ; and in this we see the admirable wisdom with which our various powers are made to harmonize. In our earliest years, we are at first entirely the creatures of instinct. If we are blessed with wise parents, these instincts are soon placed under discipline, and made, primarily, sub-

missive to their intellectual and moral faculties, and ultimately to our own. If our parents are uneducated or unwise, and but little advanced themselves beyond the stage of instinct—if they believe that the indulgence of appetite constitutes the true value of life, by such indulgence they so increase these instincts and animal propensities, as to lay a certain foundation for that sensuality by which mankind in general is governed.

Those individuals who by nature possess, or by education acquire, a power of controlling the various appetites and passions, who have predominant intellectual faculties, and who maintain a due command over the emotions and instincts, seldom become insane. Those, on the contrary, who have not in youth been taught the necessity of restraint, who in early life have been indulged in all their desires without limit, become the slaves of every appetite, indulge them most passionately, and too often end their career in a lunatic asylum.

The doctrines taught by phrenology are not altogether new. In all ages there have been philosophers who have thought we must possess in the brain primitive faculties, or internal senses. The eye and the external senses take cognizance of external objects, and carry the impressions to the sensorium ; the internal senses may generate ideas from internal impressions, as the external senses generate ideas from external impressions, both sets of ideas being received by our perceptive organs. The eye is an instrument to give information to the mind of external objects ; so our internal faculties or senses impress the mind with knowledge of the relations of bodies, time, place, modes

of action, &c. The nature of cause and effect has given rise to many controversies among philosophers; but Kant and others consider that our ideas and convictions on this point result from the operation of a special primitive faculty, which takes cognizance of, and imparts to the mind, the knowledge we possess on the subject. It is as much a sense to instruct us of the relations and modes of action of bodies on each other, as the eye is an instrument to teach us the form and colour of bodies. The phrenologists call this faculty causality.

Many have supposed that there is an internal sense, or primitive emotion, by which man recognised the existence of Deity, which led him to reverence, to look for help in this world, and hope in a future, to the Great Spirit, whose mighty operations he was constantly contemplating.

There are many circumstances which lead to the opinion, that we have within us a faculty which induces us to believe in a divinity. No intelligent savages have ever been met with who had not some conception of, and belief in, a God; and every nation at all elevated beyond the savage state has not only held such belief, but has associated with it some religious ceremonies. This has commonly been accounted for as an obscure remaining relic of early revelation; but it appears to some minds, more simple and rational to consider it an emotion, or internal power implanted in man at his creation. If it could be proved that such a sense existed in the brain, by which the mind was led to a confident reliance on a Supreme Being, would not this be tantamount to a

Divine revelation, and an unmistakable evidence of the Divinity. Was not the mind of Socrates an example of the preponderating influence of this emotion, or internal sense, which was in his case so large as to outweigh all other influences, selfish, social, or national, and gave him in death a similar hope in Divine justice, mercy, and beneficence, to that still more unflinching confidence which has upheld the minds of many Christian martyrs.

Does it not appear to you a most satisfactory and delightful conclusion, that we have within us a faculty which teaches us there is a God, who has conferred on all his human creatures a power by which they are led to contemplate, and in some degree to comprehend, the infinite wisdom and beneficence of the Author of their being? What immense difficulties are solved by this deduction; for how much hinges on our firm belief in the existence of God:—the imperishability of our consciousness, or personal identity,—the immortality of the soul,—its emancipation from an anomalous condition in this world, and happy existence in another,—follow in a clear chain of reasoning. The fact of an internal sense, by which we recognise the being and attributes of a Divinity, must be the clearest proof of the existence of the Deity that can be offered to the human mind. How could such an emotion exist without being implanted there? and how could it be implanted in the human mind, but by the same supreme intelligence which created that mind? How many men have felt what Lord Bacon has so well expressed, “that he would rather believe all the fables of the Talmud or the Alcoran, than that the

universe was without a mind?" Now, what is this strong feeling but the working of that internal sense which God has given us, to look up to him for justice and for mercy?

I have just met with a letter of Burns which bears on this subject:—"We know nothing, or next to nothing, of the substance or structure of our souls, so cannot account for the seeming caprices in them, that one should be particularly pleased with one thing, which, on minds of a different cast, makes no extraordinary impression. I have some favourite flowers in spring, among which are the mountain daisy, the harebell, the foxglove, the wild-briar rose, the budding birch, and the hoary hawthorn, that I view and hang over with particular delight. I never hear the loud, solitary whistle of the curlew in a summer noon, or the wild mixing cadence of a troop of gray plovers in an autumnal morning, without feeling an elevation of soul, like the enthusiasm of devotion or poetry. Tell me, my dear friend, to what can this be owing? Are we a piece of machinery, which, like the Eolian harp, passive, takes the impression of the passing accident? or do these workings argue something within us above the trodden clod? I own myself partial to such proofs of those awful and important realities, a God that made all things—man's immaterial and immortal nature, and a world of weal and woe beyond death and the grave." Here we have the same conclusions reached by a mind powerful by nature, and untrained to metaphysical researches, as by that of a philosopher, who has spent all his life meditat-

ing on such subjects. Can we have a stronger proof of some internal, innate power of mind, which can originate in no other way than by a Divine emanation, the effect of a law bestowed on man at his creation by Infinite Intelligence.

In pleading for an internal sense, which enables us to form some conception of the nature and attributes of Deity, I am advocating a principle of the mind, which phrenologists assert they have discovered and established by innumerable observations, and which they designate the faculty of veneration. They say that no example can be adduced of an individual possessing strong and genuine religious feelings, without a large development of the upper part of the brain. If observation of a very extended nature does in this way corroborate the existence of such a faculty in the human mind, it will be a vast addition to those arguments which favour the opinion of the existence of such internal sense. But without the assistance of phrenology, and without finding a locality in the brain for the operation of the faculty, its existence may be considered probable, from the reflections of another class of philosophers on their own consciousness, and their observations on the working of the human faculties in others.

There is another principle of the human mind which may be looked upon as an innate internal faculty—conscience, or the sense of justice—appropriately described by Adam Smith, in his work on the moral sentiments, as “the Demigod within us.” This gives us a sense of moral duty, enables us when we choose to take the

course of virtue in preference to its opposite, to which we may be impelled by some lower feeling or appetite. No man, perhaps, ever existed, whose intellect was at all developed, who had not within him a monitor which would have directed him to a righteous course, had he listened to its dictates in preference to those of animal appetite or passion. The existence and influence of such a principle in the human mind as conscientiousness, or the sense of justice, is almost universally admitted, and we may fairly conclude that there is such a mental power. Phrenologists think they have discovered a seat in the brain where this moral sentiment is located. But, with or without the observations of phrenologists, the arguments in favour of separate internal senses remain the same.

Does not the very existence of conscience prove the existence of an internal sense, which points out a Divinity? What is conscience, but the relation of our conduct, and our responsibility to our Creator? How can we account for the possession of such an inward monitor, without reference to the will of an Almighty intelligence? There is great difficulty in saying what are primitive faculties, but of conscience there can be no doubt; and surely it is impossible to avoid coupling an internal feeling, which teaches us to discern right from wrong, truth from falsehood, with Divine will and Divine power.

There are other powers, faculties, sentiments, propensities, appetites, or impulses, which may also have special internal senses, and, *à priori*, there is no very great im-

probability that their organs or instruments are located in different parts of the brain. Many, who have directed their minds to the subject, are disposed to allow that observation has been extensive enough, and sufficiently corroborated by multiplied experience, to place the seat of the intellectual faculties in the anterior part of the brain, the moral sentiments and powers in the upper and middle portion, and the affections, the instincts and animal propensities, in the lower and posterior part. I hope to answer your objections, and shall endeavour to show that all this may be true, without affecting the arguments for or against the immateriality of the soul.

The eye is a material body, but does it follow that it can give no information but what is material? Colour is a property neither to be weighed nor measured, appertaining to matter, but not itself material, and, as many philosophers suppose, not really existing in the objects which we fancy are of various colours. Here is an example of matter endowed with the power of discerning and depicting to the sensorium that which is not material; and may not our Creator have endowed the matter of which the brain is composed with the power to take cognizance of other than material objects. Admitting that the brain consists of a combination of internal senses, which, like the eye and the ear, give information to the conscious being within us of certain facts and ideas, does it follow that the mind itself is material? By no means; mind and life are powers added to matter, in a way which we cannot conceive, not having faculties

by which we can comprehend the essential nature either of the one or of the other. Beyond the exercise of the ingenuity, the thought and research, which are brought into the field, nothing has been established by such inquiries, or ever can be, because we possess no faculties which can take cognizance of spirit; this, therefore, should be the limit of our curiosity, beyond which we must repose on our faith in the Wisdom and Justice of the Divine Laws.

That every event must have an adequate cause, is an intuitive principle of the human mind, altogether independent of our experience of cause and effect in particular instances: this intuitive faculty leads us to seek a cause for every fact we observe, and is a first principle, or a first truth, possessed by every human mind. This faculty is peculiarly human, essentially different in kind from any mental effort exhibited by the brute creation. In our analysis of the mind, we observe adaptation to our earthly condition quite as distinctly as we observe the adaptation of the eye to the laws of light; and we are led in the one case, as in the other, to seek for the efficient and final causes of the laws appertaining to both in the will and intention of our Almighty Creator. In all science, we cannot stir a step without such an appeal. Our perceptive faculties give us a knowledge of facts, our reflective powers seek for causes, or relations of facts one to another: and in the uniformity of the sequence of events we can trace them to secondary causes, as when we ascribe the polarity of the needle to magnetism; but for the efficient cause which supplies the

magnetic power, we are obliged to refer to the laws of our Creator as the ultimate and only adequate source of this, and of all other phenomena of mind or of matter. We are thus enabled to trace the finger of Almighty intelligence in the construction of the mind itself, and we may, therefore, regard the workings of the mind in its aspirations after good, both in Time and in Eternity, with the same confidence with which we rely on the evidence of our senses in teaching us the forms and properties of material things.

In this instance both experience and reflection lead us to the conclusion, that we possess a faculty given to us for the express purpose of examining into the causes of events. This faculty is called by phrenologists causality, and is considered by them to be seated in a particular part of the brain, which, they assert, is always prominent in men who are most distinguished for this power of mind. Dr. Abercrombie, who was, I believe, opposed to phrenology, says: "Our general impression of causation is not the result of experience, but an *original* and intuitive principle of belief; that is, our absolute conviction that every event must have an adequate cause. This is, in fact, that great and fundamental truth, by which, from the properties of a known effect, we infer the powers and qualities of an unknown cause. It is in this manner, for example, that from the works of nature we infer the existence and attributes of the Almighty Creator." Is not this something like testimony in favour of the general principles of phrenology?

What are called first truths depend on intuition, and

not on reasoning. Some result from the teaching of our external senses, and others from the primitive powers or faculties of the mind. Among these first truths may be enumerated, confidence in the evidence of our senses as to the existence of external objects,—our belief in the uniformity of nature, that no effect can occur without a cause,—the certainty of our own existence, of our own mind, and of our personal identity.

That every effect must have a cause, is a first truth taught by the innate power of a special faculty ; confidence in the truthfulness of the teaching of our external senses is a first truth ; and equally so is implicit faith in the teaching of our moral powers, as well as of our intellectual faculties. Confidence in our capability of distinguishing right from wrong is a first truth, taught by the innate power of conscience,—the conscientiousness of phrenologists. Faith in the existence of a Divine intelligence is a first truth, taught by an instinctive emotion, which obliges us to look up to a higher power for an explanation of the mysteries in which we are enveloped. This emotion, when fully developed, and strengthened by the conviction of our reasoning powers, constitutes the highest faculty of the human mind,—the veneration of phrenologists. Are not all these first truths the teaching of faculties implanted within us, adapted to the relations which our mind was intended to bear with the various objects it would take cognizance of in its journey through life ? Are not the adaptations of our various internal senses with their objects, analogous to the adaptation of our external senses with their respec-

tive objects? The eye is adapted to the luminous atmosphere in and by which it becomes acquainted with the objects it distinguishes—its wants were understood, and its various powers were adjusted accordingly; and so of the other external senses. The purposes and objects of the organ of hearing must have been contemplated before the parts of the organ were adjusted, and so nicely adapted to the various circumstances connected with sound. So the wants of our intellectual and moral nature were contemplated, and we were gifted with powers adapted to the relations of intellect with external nature and internal emotion. For every intellectual power, and every moral emotion, we have an independent faculty and function in the brain, as necessarily separate in their action as the eye and the ear. Does it not seem as probable that the affections, the emotions, the faculties, should have separate instruments, as that the external senses should have separate instruments? The real seat of the perceptions of all our external senses is in the brain, their nerves proceed to different parts of the brain, where, in all probability, are seated the respective powers belonging to each external sense. In a similar manner we may conceive that every instinct, every affection, every emotion, every faculty, will have its particular seat in some portion of the brain, which shall be the instrument connecting its perceptions of external things with our consciousness and mental personality.

There is no danger either to religion or to morals by any kind or extent of inquiry into the remote or ultimate

principles, either of mind or of matter. If we conduct our researches in a proper spirit, having before us the desire of truth, no evil can result. God is the author of our mind : He has gifted it with the spirit of inquiry, and with the power to comprehend many of the laws by which the earth and its inhabitants are governed. We are obeying His dictates, when actively employing the glorious faculties with which he has endowed us in the examination of His works. In such inquiries we daily enlarge our knowledge, and fulfil one of the objects of our being, inasmuch as nothing so promotes happiness as an acquaintance with the laws of nature. None are so uniformly happy as those who devote themselves to such studies ; and their enjoyment increases with their knowledge, because the more they know of mind and matter, and the laws by which they are respectively governed, the clearer is their conviction of Divine agency. Such inquiries, rightly conducted, lead to the one thing necessary to human happiness, that which reconciles us to all the apparent evils of life—perfect faith in the attributes of God, confidence in His righteous government, reconciliation with present difficulties and calamities, steady hope in the future.

It is right to admit that there is a limit to our researches, beyond which it is idle to spend much time in speculation : still, it is only idle, and not evil. All inquiry seems to terminate in the conclusion, that there is only one power in the universe—*mind* ; that all modifications of matter, as well as all the laws which govern its motions or relations, organic or inorganic,

result from the influence of mind ; and we discover the only efficient or final cause, in all our researches, to be the law imposed on matter by the Almighty mind.

The most important subject of human inquiry is, therefore, a knowledge of mind ; and the more intimately we cultivate our acquaintance with the human mind, the better we shall understand the Divine government. The readiest way to develop the faculties is to inquire into their nature. No man should be considered as educated, without a knowledge of himself, and this he cannot acquire without some acquaintance with the principles of action of his own mind. A knowledge of the world without us, and of the world within us, ought to be the great points of all education ; and the very best introduction to such knowledge are the various branches of natural history. With a full conviction of the constant operation of mind in the government of this earth, its inhabitants, and the surrounding universe, we need not fear the result of any inquiry, whether concerning mind or matter, into which we may be led.

In the early stages of society, before observation and experience of succeeding generations had accumulated knowledge, men looked up at once to Almighty power as the immediate cause of every phenomenon. As knowledge increased, and men observed the sequence of events, the uniform concurrence of the same antecedent, and the regularity of laws by which they were governed, they began to speculate on other causes than the will of God. In some stages of the mind's progress, it stops short in its inquiries, and rests on these secondary

causes ; hence the diminished influence of religion in certain stages, both of the growth of individual minds and of the general intelligence of a nation. However, as the mind progresses in knowledge, and the power of reflection increases, it becomes dissatisfied with these secondary causes, and, seeking for what is more efficient, finds no other solution of the difficulty than the decrees of Divine power. May we not, therefore, draw the conclusion, that the more the mind increases in true knowledge, the more frequently it must refer to the Author of its being ; and that the resulting increase of intellectual and moral power will make men and nations as devout in the latter ages of the world, as tradition says they were in the earlier ? Some analogy may be traced between the progress of nations and of individual minds. In childhood we are all instinct—in youth we are governed by feeling and affection—in early manhood, by sense and passion—in mature life, by knowledge and reason—in age, by moral power. The mind of a nation makes similar progress ; the most civilized countries of Europe have passed through the phases of instinct, feeling, and impulse, and are now in the stage of sense and passion. May we not hope that the mature age of the world, that of science and intellect, is near at hand, and will be succeeded by the period when nations, as well as men, shall be governed by religion and moral power ?

LETTER X.

PROGRESS OF MIND IN CHILDHOOD.

MY DEAR F——,

ALTHOUGH our examination of the nature of mind must be limited to the discussion of the best means of preserving it in a sound state, as well as to show its relation to the laws which govern health, the subject is so interesting, that it may be no waste of time to take a rapid sketch of the progress of the intellect from the cradle. There has always existed a dispute among philosophers on the question of innate ideas ; some contending that the mind of a child is like an unsoiled sheet of paper, ready to receive any impression, and capable by tuition of being trained to any kind or degree of knowledge. Some, who hold this opinion, go so far as to believe that genius itself is only the creature of circumstances—that all minds at birth are so similar, that any other individuals, placed under exactly the same circumstances from birth upwards as Shakespeare or Milton, would have exhibited the same genius. Other observers of the mental powers have

come to the opposite conclusion—that some of our ideas are innate ; that at birth there is great difference in the intellectual and moral powers of children, and that the impressions made at the earliest period depend on the original structure of the organ of the mind.

In many families we find instances of hereditary descent of peculiar mental faculties and moral powers, showing that improvement of mind is not lost with the individuals, but is imparted to successive generations. You may say children gradually acquire the habits and notions of parents from intercourse ; but there are faculties, sentiments, and passions which only appear at certain periods of existence, long after parents have been dead, or have ceased to afford example. There are also cases where a peculiar character is lost in one generation, and appears in the succeeding. A good observer will perceive differences in the mental acquirements of children from the earliest period of the employment of the senses. The differing powers of the senses themselves engender early differences in mind ; one child shall have better eyes, while another has more acute ears, and the resulting impressions must of course differ very considerably. Much is done by mothers at a very early age to modify, repress, or advance peculiarities, but they are only modified, not engendered. In the same family, what early differences may be observed in infants under the same management. The differing congenital development of the various senses will cause one set of impressions to be made on one mind, and a very different set on another ; the jingle of bells pleases

one infant, a glittering object another, while a third can only be pleased by an appeal to its animal nature, and the gratification of its appetite for food.

Such are some of the reasons why we must conclude that there are at birth peculiar conditions of the mental organs, which favour the reception of a particular class of impressions, this condition or capacity being innate, but not the impressions themselves, which require to be perceived by the senses, and conceived by the mind, before they become ideas; so that the true conclusion, perhaps, ought to be, that there are no really innate ideas, but only an innate disposition to receive certain classes of ideas in preference to others. As the mind advances in knowledge, and the perceptive organs acquire a large store of facts and ideas, these are combined in various proportions, compared, and associated according to the aboriginal peculiarities, which constitute the great diversities of intellect, from the smallest degree beyond idiotism, to the genius of the poet, and the mental and moral powers of the philosopher.

So soon after birth as the eye and the ear are employed, the child begins to receive impressions, and to develop its innate or latent powers of mind: the instinct for food is the first employment of life, and the senses of taste and smell may make the first impressions on the sensorium. The sense of feeling, perhaps, affords some impressions, as of heat and cold, before the eyes and the ears are employed; but very soon after birth all the senses are in full operation, carrying to the brain the various facts they take cognizance of, there to

be registered and stored up by the perceptive organs and the memory, for the future use of the various faculties, which in the aggregate form the mind.

What an immense store of knowledge a child has acquired before it is two years old. What a variety of objects have delighted the eyes, the real existence and form of which have been verified by the fingers. It is supposed that the eye only informs us of plain surfaces, that it is necessary the size and form of objects should be developed by the organ of feeling, and who can fail to have observed how very diligently children manipulate every object they touch? The external senses may be considered as the purveyors of information to the internal senses, which latter directly communicate with the sensorium. The eye itself is an instrument by which the sensation of colour is conveyed to the brain, perceived and registered by the internal sense which there exists to take cognizance of the various modifications of colour. On the original capacity of this faculty for the conception of colour, depends the way in which the impressions of colour are received, and the very different ideas which are formed by different persons on the subject. Those singular cases where one colour is always mistaken for another, must depend on some original difference in the power or capacity of the internal sense of colour in receiving the impression conveyed from the external sense of sight. Hence, may we not conclude that the sense of colour has its seat in a special faculty in the brain?

The ear is an instrument by which sound is collected,

carried to the brain, and there appreciated by a power, which differs in different persons in a most extraordinary degree, some having little or no idea of either melody, harmony, or rhythm, while others feel one or all in an exquisite manner. Some of your own children are born with music in their souls, while others have great difficulty in understanding time, tone, or tune. How can this be accounted for, but by some primitive difference of organization? It is this innate difference of organization that I am contending for, because dependent on this conclusion is another grand position, nearly amounting to demonstration, that man has been gifted with powers almost divine; for are not the creations of the greatest geniuses among poets and musicians, in this sense, inspirations from heaven? What is genius, but the original or innate possession of an internal power, which can only result from the operation of laws relating to the development of mind, given to man by his Creator? hence the appropriate term, "heaven-born genius." Is it not probable that both music and poetry have special seats in the brain, and that they are primitive powers, possibly located in some of the convolutions, and which powers in a young child may lead him peculiarly to appreciate, and very early to distinguish himself for musical or poetical talent? Cowley printed a volume of poems at thirteen; and Pope says of himself:—

"And still a child, nor yet a fool to fame,
I lisp'd the numbers, for the numbers came."

Look at the forehead of every man of genius, and tell me whether there can be any doubt of the connexion

between great talents, highly-developed mind, and the anterior lobe of the brain, which is lodged within this part of its bony case, and of which it is nearly a perfect model.

Phrenologists give names and localities to organs in the brain for the appreciation of colour, time, and tune ; but whether or not we can point out a locality in the brain as their seat, appears to me of less importance than the fact of their existence as internal senses. The existence of such innate powers does not seem improbable, and it is next to certain that a wide and high forehead always accompanies genius and intellect. A perfect poet or musician requires the full possession of several of these innate senses, powers, or faculties—the sense of rhythm or time, of tone or melody, combined with imagination, feeling, and intellect : but how very rarely we have all these faculties fully developed in the same person. When they do all meet in one individual, the result is genius ; and if, added to such faculties of mind, we find exalted moral character centered in the same person, the result is as near an approach to perfection as human nature is capable of reaching.

When we reflect how many faculties are required to produce a perfect character, we need not be surprised at the rarity of its occurrence. It appears probable that such condition of the mental and moral powers was not intended for this earth : perhaps it would be incompatible with our present mode of existence. Our aspirations lead us to the hope that such an exalted state of the mental and moral faculties will, in some future condition,

be developed ; and we fulfil our duties when we keep such a prospect steadily before us. The best view we can take of our apparently anomalous position in this world is, that it is a place of education for the development of the intellect and moral powers, to qualify us for removal to some better state. All the appetites, feelings, and passions,—every condition of human nature, from the highest to the lowest,—afford proofs that man does not end his being here, but that he is running a race to a distant goal, some with more speed than others, but with this remarkable difference from earthly races, that all may reach the winning-post.

We might gather from many writers on the mind evidence for separate and distinct faculties. Here is a passage from Dr. Abercrombie : “ Can there be any doubt of the separate and distinct existence of an intellectual power and a moral power ? The one may be diseased and the other sound, or the separate senses, functions, or faculties of each may be diseased : hence the variety of the causes and symptoms of insanity. Close observation and multiplied experience alone can elucidate these points.”

Can there be any doubt that the brain is the organ of the mind ? Is it not very probable that it consists of a congeries of internal senses and powers ? By means of the external senses, facts are imported to the internal senses, which may be compared to storehouses for the accumulation of facts. From impressions and perceptions, result conceptions or ideas ; from the frequent association of ideas, their collocation, comparison,

combination in endless variety, marshalled and arranged by the various processes of abstraction, generalization, &c., the latent intellect becomes developed.

You say, that viewing the mind as the effect of organization leads to materialism ; a term too often used without any precise meaning, and therefore we will endeavour to see how it ought to be applied. In our investigations, let us never be frightened at any legitimate result of thought. The mind of man is the gift of God ; and faith in God should teach us that any inquiry, if it be true-hearted inquiry, can never lead us wrong ; on the contrary, the grand result of experience is, that the more searching the inquiry after truth, the more are the mental powers increased, the more clearly do we see in every step the hand and the intelligence of an Almighty Creator, and the greater is the happiness consequent on such employment of the human mind. If God is a spirit, so is all mind, and we may therefore rest satisfied, that if in this world the soul of man is mysteriously associated with the organization of material particles, its rapid progress to the termination of its earthly career will soon dissolve the union.

Of matter we know nothing but its properties, or of mind but its functions ; and it would be equally absurd to talk of the spirituality of matter, as of the materiality of mind ; the two things have nothing in common, and cannot be compared. True science teaches, that we should limit our inquiries to the laws by which they are respectively governed, as made known to us by observation and experience. If materialism means anything

beyond a name, it must be, that nothing exists but matter ; and that light, colour, heat, life, and mind, are to be all classed together as mere properties of matter. As an illustration of the insane absurdity to which such opinions lead, let us examine the development theory, which is truly materialism in its most complete and modern form. The theory of development supposes, that the present condition of the earth and its inhabitants is the result of a concatenation of causes and effects, which have necessarily resulted from the inherent properties of matter. That under certain conditions of matter certain forms originate, the lowest animals and vegetables having been first elicited, and, as circumstances became favourable, beings of higher organization came forth. That under one condition of the earth's surface, nothing could exist but animals delighting in a foggy atmosphere and muddy fluids ; that the earth was then peopled with those extraordinary beings, which the researches of geologists have clearly shown to have inhabited our planet, long before it became the residence of the present races which people it. The ichthyosauri, the plesiosauri, and the other monstrous forms, which we now see only in a fossil state, were, ages before the creation of man, the tenants of the earth, which was then in an unfit condition for the higher classes of vegetable and animal organization. The development theory supposes, that as the atmosphere surrounding the globe became purer and clearer, the waters less opaque and muddy, and the land clothed with mineral detritus,

vegetable and animal remains, fitting it for better vegetation, that better vegetation sprung up. That, as the food for sheep and other higher animals appeared, sheep were developed ; that the existence of vegetable feeders engendered a want of animal feeders, and that beasts and birds of prey followed as a matter of course, when there was sufficient food for them.

The development theory farther supposes, that one degree of organization suggested another and a better ; that experience, or something like it, taught matter to arrange itself in more complicated forms ; that one addition led to another, "the diapason ending still in man." Thus, it is affirmed by some who favour this theory, that man is only a highly-developed monkey,—monkeys having improved, by the concatenation of circumstances, from the apes and baboons, to the chimpanzee and the ourang,—a trifling addition made man. Only a little more brain, which presented itself opportunely and unsolicited, in order to complete the present races of animals.

Such I believe to be a fair, candid, and complete statement of materialism, and as such, shall dismiss it, with the conclusion that, if we did not know the fact, we should hardly conceive it possible that such opinions could find any favour ; but the love of singularity, and the desire of squaring theories to suit preconceived opinions, is the explanation of the fact.

There is another kind of materialism, so called, founded on the speculation that the Deity, at the creation of the

world, imposed laws on matter, which gradually, and as a result of these laws, developed itself into the order and the forms which we now find existing on the globe. These laws, however, can only have resulted from intelligence—the addition of mind to matter—and, therefore, this is not truly materialism.

LETTER XI.

FACULTIES, LATENT AT BIRTH, GRADUALLY DEVELOPED
BY EDUCATION.

MY DEAR F——,

PROBABLY every act induced in infancy by instinct, does something towards the development of the mental and moral faculties. The faculties, though latent at birth, exist in the brain, destined to be called into action by the circumstances in which we are placed, or to remain latent and useless, unless educed by teaching and training. If the preceding views are correct, the brain must consist of a number of internal senses, differing in this from the external senses, that we are not absolutely compelled to use them all. We must use our eyes and ears, but many of our internal senses may never be employed, and this is the fate of the majority of the human race. God has given to nearly all mankind mental and moral powers, capable of indefinite improvement, and among these an internal monitor, whose voice tells us when we are properly using them. The germ of the future soul is born with

us; the brain contains those rudiments of the various faculties which are to be brought into life and action. In the new-born babe those glorious powers lie dormant, destined to be ripened into Shakespeares, Newtons, or Scotts, and capable in all of being trained to the comprehension and enjoyment of morals, philosophy, poetry, and all the creations of heaven-born genius. Who can doubt that in the brain of the infant, at his first entrance into life, all the powers or faculties exist, waiting only favourable circumstances to bring them into light.

What a duty now devolves on parents,—upon them depends in great measure what shall be the fate of their offspring. God has given them what may prove, according to their own management, one of the greatest blessings of life, or the reverse. The being just issued into the world has the germs of virtue and of intellect, possesses external senses and internal senses, which all require direction and training—in other words, to be educated and instructed. All children are born with the same faculties, but in different proportions. Nature, in this and all her gifts, exhibiting justice, for if any one sense or faculty is deficient, there is a compensating balance in the higher perfection of some other power. As a general rule, all are capable of instruction, and every parent should have fitted himself with the necessary qualifications for eliciting the latent mind of his offspring. The general rule, that all children are born with faculties capable of development, suffers occasionally by the birth of idiots, and deaf and dumb children;

these are overwhelming misfortunes, so deplorable, and difficult of remedy, that in a well-regulated society the State should take the charge of all such objects. These are evils beyond our control, dependent on laws which have, no doubt, some important teaching, as must be the case in this and all other instances (however to us anomalous and lamentable) of God's providence. The old superstition, that these are emphatically children of heaven, has some apparent truth in it, as they are incapable of ordinary tuition, and as such should be provided for by the State.

How few, before they become parents, reflect on the very important duties which are to devolve on them. In this point, fortunately for our race, mothers are, generally speaking, better qualified than fathers. It is an old remark, that most great men have to thank their mothers for their success in life, and you will almost always find that every distinguished man has had a clever mother. So much is learned by a child before he is two years old, that it is obvious how important must be the tuition of the parent with whom he spends his time during this early part of life. Probably, in most cases, the general bent of the mind is established in the nursery; and if the subject was understood, much might always be done, at this early period, in eliciting those faculties of the mind which are the earliest developed. For example, much good must ensue from early exercise of one of the most important of all the mental powers, that of attention. Whatever a child is doing, it would be well if his attention was riveted to it, until he com-

prehended as much as his age permits, before he passed to anything else. Children are so volatile, that they fly from one thing to another, with too much rapidity thoroughly to acquire a knowledge of one object before they begin to examine another. The possession or the absence of the power of fixing the attention steadily to the present pursuit, constitutes much of the difference of capacity which we find among men. We often say, such a child is blessed with a retentive memory, when the power is the result of that close attention to one subject at a time, which ensures the knowledge of it: you will find that this power of abstract attention is one very distinguishing feature of genius.

In children, the power of attention can only be properly applied to objects; a very young child should only be allowed to attend to things, and there is plenty to do in this way for several of the first years of life. The mode of teaching in infant schools is well suited to the age, a knowledge of things and words. Any attempt to engage the higher faculties of the mind is injurious—a precocious child is a great misfortune; the extraordinary development of one or two faculties prevents the exercise and education of others, and such children grow up unfit for the common duties of life, exhibiting sometimes eccentricity, sometimes genius:

“Great wit to madness sure is near allied,
And thin partitions do their bounds divide.”

The moral part of our nature, like the intellectual, begins to dawn before the child is one year old. The first feeling which appears is joy at the sight of those

who have administered to its wants, whether a mother or a hired nurse. A healthy infant will generally be happy—an unhealthy one will exhibit anger before joy. We can no more compare our moral nature, than our intellectual, to a sheet of paper upon which anything may be written, every individual having at birth, most likely inheriting, peculiarities in the moral as in the intellectual powers. As a general rule, all have the same number of latent innate faculties, some of these being larger and more open to development than others ; hence, the great variety of character exhibited by children from the first dawn of expression, and the various proportions in which the different moral sentiments are combined, constitute the illimitable varieties of character among mankind. As in the intellectual, so in the moral faculties, much may be done in the nursery to educe the best parts of our moral, and subdue the worst parts of our animal nature ; and so early is the effect, that before the age of ten the future character may be indelibly stamped. Although nature has given to each individual, peculiarities of temper and disposition, which are sure to exhibit themselves, yet much can be done to modify these peculiarities, by repressing some and encouraging others. Many of us have discovered for ourselves that great change of character may be effected by self-control, even when the bad parts of our nature have been allowed to grow with our growth and strengthen with our strength, unchecked by the tender care of an affectionate and intelligent mother. Every reflecting mind must see how much would be the

general improvement by judicious management in our earlier years. Many can trace some of the most important and vexatious incidents of life to an uncontrolled temper, and there is no one point which conduces so much to our comfort, as perfect self-command.

There is no great hope of any material improvement in the human race, until a knowledge of our intellectual and moral nature shall be sufficiently diffused to be applied to the education of youth, and even to the early management of children. With how much trouble many have to unlearn and to discard the effects of fear, folly, and superstition acquired in the nursery.

One of the most important problems relative to mental development is contained in the question, "Have we any ideas independent of experience?" Surely all those ideas which are generated by the feelings and emotions exhibited at a very early period of infancy can have no external cause. A lively, happy child, at the age of six months, will express, by the laughter of its eyes, the workings of an internal sense altogether independent of experience. Must not such feelings give rise to impressions and ideas which may be called innate? I am, therefore, inclined to answer the question in the affirmative. There appears to be a very large class of ideas, which can only be generated by the influence of the emotions and the instincts :

"Faith, Hope, and Joy, fair Pleasure's smiling train—
Doubt, Fear, and Grief, the family of Pain."

The whole train of mental associations must differ, as one or other class of these emotions predominate ; and

some of the ideas associated with pleasure and happiness, or with pain and misery, must be connected with internal feelings, and not truly the result of experience. But perhaps the discussion of this subject is out of place in these slight commentaries on the operations of the mind.

Is not insanity often the result of the predominance of ideas, resulting from internal emotions, over those which result from experience of the world without us. Insane persons have lost the power of comparing and balancing the two classes of ideas—of regulating the truthfulness of their peculiar notions with those of other people. Want of power to correct ideas by comparing them with external experience seems to be an essential feature of insanity.

If any doubt may exist as to the origin of our ideas from external experience, there can be none as to the ultimate independence of our mental and moral powers. Mind, when fully developed, may be totally independent of external things. The eye would be of no use without light, but mind requires nothing beyond its own powers: having once acquired knowledge, it can recal it, and combine it in all kinds of form and relations, without any farther assistance from external or material things.

LETTER XII.

DEVELOPMENT OF THE OBSERVING AND PERCEPTIVE FACULTIES.

MY DEAR F——,

THERE can be nothing more delightful than to watch the opening mind of a young child. You have been gratified by the development, in your children, of a remarkable proportion of the intellectual faculties and moral powers. Your care and anxiety have been rewarded, and they all bid fair to exhibit what may be done by early tuition and example. They inherited the germs of intellect and feeling, but they also inherited animal propensities and sensual appetites. The constant exertion of your life has been to repress and check the latter—to encourage and elevate the former. Your efforts were continued by good tutors, and the results are such as will always ensue from carrying out, to the best of our ability, the laws of God.

The first months of the life of a child are as much guided by instinct as those of a dog or other animal; and in the savage, or other totally uncultivated mind,

the animal instincts and propensities continue, through life, the sole actuating principles. God has given to man similar instincts to those which guide animals,—to seek their food, to protect themselves from injury, to bring up their offspring, &c., and, in addition to these, moral sentiments and intellectual faculties, the gradual development of which overpowers the instincts, and gives him nobler objects of pursuit. The duty of a parent, in civilized life, is to assist in superseding the animal instincts, by encouraging the growth and controlling power of the purely human faculties. The earliest instinct is the desire of food, which, encouraged, leads to gluttony in the youth, and the most filthy of all sensuality in the man. How few parents take any pains to repress this instinct; on the contrary, they encourage it, by making their rewards always consist in sweets and eatables, when the result would be altogether different if the reward was a toy, a picture, or a book. The great principle of education, which should never be lost sight of at any stage of life, should be to supersede animal instinct by mind. During the early years of life, the mind of the parent or tutor should control the propensities, while the object is ever present to educe those human feelings and faculties which, when developed, give to the will, the inclination and the moral power to subdue sensuality, and all the lower impulses of our nature. Such is the beautiful harmony with which we are constituted, that the instincts and animal propensities all lead to happiness and to intellectual development, if rightly controlled, and only permitted cer-

tain indulgences. God permits us the use, but forbids the abuse of them, and has endowed us with means of knowing how to use, direct, and control them. In all ages of the world, festive scenes have been encouraged by the best and wisest of mankind ; they tend to sociality and friendship, and, so far, deserve to be occasionally employed. Under the dominion of mind, they greatly contribute to our happiness and improvement ; carried on without this dominion, without self-command and resistance, they lead to evils of the worst kind.

In acquiring control over the appetites and propensities of our children, we are laying the foundation of that self-command, without which there can be no real happiness in life. Where the will of the parent is under the guidance of reason, the violence of feelings and impulse subdued by experience and knowledge, and the great object of self-command obtained, we can conceive no happier commencement of life than that of children whose will is entirely under the guidance of such direction. How best to obtain command over the will of the child, is a problem which is by no means solved by the unanimous consent of mankind. Some attempt it by violent means, some by a more soothing treatment. You and I have known the most irascible and violent of parents, who have had the most pacific and obedient of children ; but this only occurs where the parent, in spite of his temper, has sense and knowledge to govern properly ; just as a wise despotism, if we could always secure perfect wisdom for the head, is the best of all possible governments.

In the management of children, as in everything human, there can be no general rule ; the diversity of their tempers and characters will always require some difference of treatment. The great point is, that the governing powers of the nursery should know where to exercise restraint, and to do it with firmness, kindness, and decision. Punishment cannot be entirely banished from education, but, if properly enforced during the first ten years of life, it will never be required afterwards.

The infancy of the human mind may be considered as extending to the tenth or twelfth year ; during this period much should have been learned, but chiefly objects and facts. The faculties which are developed are those of perception and conception ; and the instruction of young children should be confined to the storing up facts and arranging them in the memory, to be of service when the mind begins to combine and compare ideas by the higher faculties of imagination and reflection. The course of education has been, to some extent, modified to the gradual progress and development of the faculties. Common sense dictates that, in accordance with observation of nature, we should leave the imagination and reasoning faculties to come forth at their own time, and not force them at an earlier period. Experience has taught this lesson, in the ruin of some of the brightest intellects that ever came from nature's hand. An early death has too often awaited genius, from the impatience of friends to exhibit to the world the precocious talents of youth, which, if repressed until

the knowing faculties had been well stored, and the mental and moral powers strong enough to act as a curb on imagination, would have repaid with interest the wise delay. We must never forget, in the education of the mind, that if we neglect at the same time to strengthen the body, we shall lose our reward in premature decrepitude or death. The training of both mind and body must go hand in hand, and be so conducted as to fit our children for what God has appointed the proper duty of man—a life of activity.

During the first ten or twelve years of life, the external organs of sense have been diligently employed in the examination of the greatest variety of objects; and if we could sum up the amount of knowledge so obtained, we should be astonished at its variety and extent. In the first place, that internal sense or faculty which directs the acquisition of language, has been made acquainted with names for the innumerable objects which have come under observation. We do not estimate the quantity of knowledge a child is constantly acquiring by the use of his senses from observation alone, we only take cognizance of that which results from tuition, and which is probably the least part. One great advantage of school over home education is the great amount of knowledge learned by one of another, which mutual advantage applies to the case of girls as well as boys.

We have thus endeavoured to trace the progress of the mind from birth, and to show that, during the first ten, twelve, or even fourteen years of life, the great

object of education should be, to make the brain a storehouse of words and things. The power of comparing and combining ideas, of tracing analogies and drawing conclusions, appears at different ages, but rarely to any useful extent before the age of twelve ; in most instances later. In some, the reasoning powers have made but little progress even at twenty, although after that age they become highly developed ; while it is to be feared that, in the majority of mankind, they never appear at all. The extension of education has increased, and is increasing the number of reasoning beings among our race, but still the proportion to the numbers whose intellectual faculties are hardly evolved at all, is, and probably must ever remain, small ; and this may possibly be the law. It may be incompatible with the nature of man on this globe that there should be any approach to universal intellect ; and, indeed, we may almost infer the law, from the fact that the reasoning powers and the full development of the understanding, are rarely obtained before that period of life when the activity of our passions is on the decline, and our experience is of less use to ourselves than to others who are entering life, and but few of whom are willing to take advantage of any other experience than their own. With all the advantages of the moral teaching of Christianity, and with all the instruction of the printing press, how small has hitherto been the progress of men, as a race, in intellect and morals. In three-quarters of the globe there is little evidence of improvement at all. Fluctuations of civilization and knowledge have occurred ; one country after

another has exhibited some progress in the arts and sciences; and a few moral philosophers have arisen to enlighten their fellow men. These countries have flourished for a few generations in prosperity and intelligence, when the sudden effects of war, or the slower influence of luxury, and its certain follower, poverty, have again sunk the people in ignorance, vice, and barbarity. Examples will occur to all. In Asia and Africa, even in America, traces are found of buried cities and defunct civilization. In Europe we have had the glorious examples of Greece and Rome, which, after exhibiting some of the brightest pictures of the extent to which the human mind could be developed, gradually sunk under the oppression of luxury. In modern Europe we flatter ourselves that circumstances exist which will prevent similar catastrophes. I trust they do; but this opinion has been roughly handled by the events of 1848 and 1849. We have seen governments, apparently the strongest, shattered to pieces in a few days by a mere mob, and attempts made to govern mankind by new principles; but with little success. The masses, after assisting their leaders in the work of destruction, enabling some to satiate themselves with plunder, after being led like sheep to be slaughtered, first by one and then by another, have sunk lower in the sty of vice and poverty. Let us hope that true liberty has, however, gained a step, in the feeling that it can only be advanced by the diffusion of knowledge, and that all human improvements must be gained by discussion, and the collision of minds holding different opinions, rather than by the old weapons

of brutal warfare. May our own country remain a bright example of the possibility of the progress of true civilization, founded, as it can only be, on intellect and morals, and the unfailing result of their combination, true religion.

The growth of the human mind is so gradual, and the period of development of particular faculties so various, that no age can be pointed out at which specific mental phenomena appear. After the faculty of language, and the powers of perception and conception have been well stored with words, facts, and ideas—association, comparison, analogy, &c., assist in developing the reason, and that consciousness of personality, which are the leading features of the human mind. It is this consciousness of mental personality, this knowledge of ourselves, by which we are enabled to contemplate the world within us, that should be the object and end of all education. There would be fewer cases of insanity if this knowledge of self, this acquaintance with the actuating and moving powers within us, could be more generally acquired. Do we not educate the feelings more than the intellect? and is not this the source of much of the misery, and some of the insanity which prevails? The reason should be the monarch—but do we not live under the aristocracy of feeling, or the anarchy or democracy of the animal instincts and propensities. May not the present position of society be thus delineated? The uneducated or half-educated classes live under the dominion of the ungoverned instincts, animal propensities, or sensual passions. The

well-educated classes live under the aristocratic dominion of the refined sentiments, domestic affections, and the softer passions, with some slight intellectual and moral influence. The fully educated live under the sole dominion of intellect and moral power, whose business is to regulate and control the inferior emotions, passions, and instincts. This combination constitutes wisdom.*

Alas ! you will say, how few can be admitted into the last class ; but does not this result from defective education ? That the masses of mankind will ever be raised much above the rule of sensual gratification, is, perhaps, only a dream of socialism, or French philosophy, which has been pretty well tested by recent events. But that the middle classes, (into which the good of the lower can always elevate themselves,) cannot be fitted by education for self-government, is a libel on human nature, and contradicted by the experience of our own country, indifferent as education is, even here. Education of the intellect is very indifferent,—as regards the observant and knowing faculties, it is good,—as regards the moral and religious sentiments, it is tolerable,—but as regards the mind, the conscious personality, the real identity, the true distinguishing feature of man, it is very imperfect. The mind of man differs in kind, and not in degree only, from that of brutes ; we can teach

* “ Wisdom is not the same with understanding ; talents, capacity, ability, sagacity, sense, or prudence—not the same with any one of these ; neither will all these together make it up. It is that exercise of the reason into which the heart enters—a structure of the understanding, rising out of the moral and spiritual nature.”—H. TAYLOR.

monkeys, dogs, horses, and other animals, we can impart to them some knowledge and some arts—many animals exhibit feelings of gratitude and affection, and a higher degree of the same things is taught in our schools; but those among us who make any real acquaintance with mind, are either self-taught, or have acquired it from circumstances altogether unconnected with school education.

Perhaps it would be more correct to say, that man has some powers of mind which are altogether different in kind to those possessed by animals, while he has others which differ in degree only. For example, to those faculties of mind which enable us to understand the relation of cause and effect, and to draw inferences and conclusions, animals have nothing analogous. Monkeys will enjoy the fires left by the Indians in the wilds of America, but they have no idea of maintaining them by the addition of more fuel, and still less of rekindling them.

LETTER XIII.

PROGRESS OF MIND FROM CHILDHOOD TO MATURITY.

MY DEAR F——,

LET us proceed with our brief history of the development of mind to its maturity. In doing so, we shall have to notice the means necessary to educe those intellectual faculties and moral powers, on the possession of which the happiness of life depends. We must never forget that, as exercise invigorates the bodily organs, so the intellectual faculties, the moral powers, the feelings, and the instincts or animal propensities, are all strengthened by exercise; and the more they are called into action, the greater will be their respective power for good or for evil. It is clear that, in the conduct of the understanding, there can be no general rule or system equally applicable to all; but as human beings are very diversely organized from birth, and their original faculties have innate biases, which lead them different ways, in the guidance of youth we must watch these different tendencies, and encourage or check them, as may be advisable. Such are the innate diversities of application,

attention, and facility of acquiring knowledge, that in every family each individual requires some peculiar instruction ; and it is the duty of a wise parent to study such diversities, both with a view to the modifications of teaching incidental to peculiarity of original capacity, and to the future occupation of life. For example, when circumstances dictate that a boy shall pursue some particular occupation, we should endeavour to direct his tastes into that channel which shall harmonize with it. If you have a son who must be a lawyer, and I have one who must be a medical practitioner, it is proper to keep those objects in view during the whole course of education, from the nursery to the college. But the most important point, is to watch the early development of those indications which point to the future character, mental and moral ; so that, when we place our children to the care of the schoolmaster and professor, we may be able to point out the peculiar tendencies in the mind of each.

The home education of our early years carries its influence through life, although it is greatly modified by the examples, instructions, and admonitions, of the period we are now considering : so much, that, under very favourable circumstances, the character may be recovered from the very worst effects of early neglect or mismanagement. But this is a chance which should never be calculated on : it is expecting more from school or college tuition than we have a right to expect ; nor is it the usual course. If the discipline, example, and tuition, of the nursery have been neglected, in the majority of cases the evil will extend through life, so that when a youth

turns out badly at college, we may, in most instances, fairly impute the effect to the neglect or mismanagement of the home education of early life.

An anxious parent will carefully watch the effect produced on children by the first year's absence from home. A school is a miniature world, and the new position in which a child has been placed may draw forth traits of character which the circumstances of home had concealed from view. The tricks of children at school very much resemble those of the world at large.

It is no difficult task for one well acquainted with the proceedings of boys at schools, to see who will accumulate money, and who will spend it. The cautious speculator will be seen in one boy, who will sacrifice present indulgence to future profit; while the sensualist and spendthrift will be found in his easy dupe, who engages to pay shillings after the next holidays, for pence advanced at the moment. The same may be said of all the actuating principles of human nature: they will all be exhibited by the inmates of a school, from the grosser propensities which connect us to the brute creation, to the nobler faculties which aspire to heavenly things. It is the great duty of parents and tutors carefully to watch the development of all the elements of character, and endeavour to strengthen those better feelings and faculties which are to control the temptations to sensual indulgence, to which, as young men, they must be exposed in the great world they will soon enter.

Many years of conflict in our mature life would be spared to most of us, if our education could be conducted

on more certain principles. If it were possible to see in the boy the future man, much might be done by advice, restraint, and humane discipline, to prevent evils which all have individually felt, more or less. But the same indiscriminate system is applied to all minds and tempers ; and the consequence is, that many must be sacrificed. It has always appeared to me that, at school or college, the many are sacrificed to the few. It is pretty much the same in after life, and may be the law of our present nature. Nevertheless, parents might, if tutors cannot, study the characters of their children, and adopt that system of education most suitable to each. Some will improve most in a large public school ; others will do better in a smaller school ; and some few will be most benefited by private home education.

It would be unwise to limit our views to the future occupation of life, for we should also take into the account the moral and religious tendencies. How many cases of insanity depend on the bias of emotions and feelings, which require restraint and discipline. The feelings should be very carefully watched, for here, in general, lie the germs of eccentricity and insanity. Our object should be, to place them under the control of mind, and this can only be effected by developing the intellect. To exercise and discipline the religious and moral feelings is one great problem of education. To excite that proper degree of feeling, where there shall be warmth enough without rising into passion or mad enthusiasm, is the point to be aimed at ; and perhaps we ought to prefer an approach to excess of emotion rather than the

apathy of stoicism, or the coldness of scepticism. Here the grand desideratum becomes evident, that there should be that development of intellect which will know when and how to check the emotions; for the best of them may run into excess, and lead us into misery or insanity. How many of the most amiable of mankind have had all their mortal happiness ruined by excess or perversion of religious feeling. Where the intellectual faculties are not powerful enough to take a right view of human nature in its relations to the Divinity, the mind becomes overwhelmed, oppressed, and confounded, by those cold, dark, and dismal opinions, which represent man as a degraded and irreclaimable creature, and his Creator as implacable and irreconcilable to his ignorance and errors. At this moment, how many of the fairest portion of our fellow-beings are immersed in melancholy, misery, and insanity, by the overwhelming influence of these horrible doctrines on their tender and sensitive feelings. How many families have to deplore the loss of sympathy, in one or more of their relatives, from the influence of mistaken views of religion, in alienating their affections from home, and deluding them with the idea that they are thus sacrificing earthly to heavenly things. Can that be true religion which destroys the ties of blood and of affection, which teaches the child to look coldly on its parents, because they do not hold the same opinions as the narrow-minded, selfish, or cunning pretender, who has, unhappily, obtained an improper influence over the feelings of inexperienced youth? What a sad perversion of the true spirit of the gospel of

Christ, "Peace on earth, good-will towards men,"—how utterly inconsistent with St. Paul's admonitions, to avoid contentions, disputes, envyings, "that the fruit of the spirit is love, joy, peace, gentleness, goodness, faith, meekness,"—how totally opposed to the precept, "to do justice, to love mercy, and to walk humbly before God." Let me not be misunderstood in the least degree. Truth has, in all ages, had its tried and suffering martyrs; but their trials and sufferings have been in the spirit of the above quotations, in harmonious consistency of conduct, in the purity and confidence inspired by true feeling or true knowledge, and not in the distorted views of an ill-regulated enthusiasm.

All the actuating principles of man in this world may be the result of the blind instincts of appetites and passions, or the unreflecting impulses of mere emotions, and unless these are governed by the controlling powers of intellect, may lead us into sin, error, eccentricity, and insanity. We should extend our inquiry too deeply were we to examine into all the causes of insanity, but it would be easy to show that the majority of cases result from the unconquered appetites or feelings, and want of that self-command, which can only be possessed by those whose intellectual faculties have been sufficiently developed, and strengthened by continued employment and exercise. Man was destined by his Maker for active employment. Health and strength of body can only be possessed by observing the laws of temperance and exercise. Health of mind can only be obtained by observing similar laws, for temperance applies equally to

mind and body. To be healthy, the mind must be exercised by the active employment of its various faculties. We must not be satisfied to become mere store-houses of information, but having in our earlier years acquired a good stock of ideas, we must through life continue to employ our higher intellectual faculties in the examination, comparison, and combination of these elements of knowledge. We must acquire an insight into the laws which govern the material world by which we are surrounded, and the spiritual world within us, and which our beneficent Creator has endowed with powers that, rightly employed, produce happiness here, and a joyful faith in a more glorious future.

Have I said enough to show that the education of the whole soul should be our object. The mind, in its totality, may be considered as the combination of knowing faculties, the storehouses of information,—the powers of abstraction, combination, and comparison of ideas—imagination—reasoning—together with the religious sentiments and moral powers; all concur in educating that state of conscious personality which makes man a responsible agent. When the religious and moral powers act harmoniously with extensive information, and a well trained intellect, capable of directing the whole, we have a good specimen of human nature. We meet in the world with individuals having one class only of these principles so predominant that the influence of the others is almost nothing. We see people who are such gormandisers of knowledge, that they are filled to repletion, but having no powers of digestion, or not caring to

employ them, their overloaded brain is as useless to real knowledge as an overloaded stomach to the proper nourishment of the body. Some men continue to acquire information all their lives, without ever stopping to apply it to any use. They rarely employ their minds in meditation and reflection on what they observe or what they read, and their mental faculties, from want of exercise, are so torpid that the effort to employ them becomes painful. The majority find it an easier task to take upon trust the opinions of others, than to exert their minds in the formation of opinions of their own. All this results from defective education. The memory may be stored with information, but the real intellect, the reasoning powers, may remain latent for want of employment.

Again, we find persons who actively employ their intellectual faculties without having had the industry to supply them with sufficient food. They have by nature powerful minds, but want of education, or of application, has denied them those stores of information, without which reasoning and reflection are of but little use. Indeed, great powers of reasoning without knowledge of things and men, are more injurious both to the individual and to society, than the contrary condition of mind. Where the higher intellectual powers have been much exercised, and are developed to a greater extent than the perceptive organs, and moral sentiments, the thoughts are led to impracticable theories of human nature. Individuals so constituted expect more excellence than the general current of human affairs, and a knowledge

of the history of mankind, warrant. Ignorant of the laws which God has imposed on man's existence in this world, they are disappointed because all are not philosophers, and would adopt measures to make mankind such as they are themselves. They would teach children to reason, and attempt to govern them by no other means than an appeal to intellect, before the period that intellect is developed. They would govern men, as well as children, without restraint, and expect to see the passions and appetites yield ready obedience to the call of virtue and of reason. Such were the minds which attempted to steer the vessel of the State through the stormy seas of anarchy during the first French Revolution. Unenlightened by the superadded experience of another half century, similar minds again attempted to rule on similar principles, after the revolution of 1848. We all know the miserable failures; and so it must always be, if in the training of children, or the government of men, we act on a partial view of human nature. Such impracticable minds too often lead to insanity. The third class we have attempted to exhibit are those who by nature, or by education, have the emotions and moral sentiments highly developed, without a corresponding development of the intellectual faculties, and this as a class affords a large proportion of the inmates of lunatic asylums. They are enthusiasts in religion and virtue; with the most ardent desire for converting all mankind to their own views, they will make any sacrifice, and with so good an end in view they are unscrupulous of the means to effect it. Hence the

horrors of the Inquisition, and the persecuting spirit of bigotry, which is not by any means extinct in this enlightened nineteenth century.

These perverted conditions of the human mind result from the predominance of one set of faculties without a corresponding development of others, which are necessary to counteract the false teachings of a few overcharged powers. Insanity can hardly occur in a person whose mental faculties, moral sentiments, and animal propensities, so harmonize, that none are predominant, and all obey the laws which our Creator has imposed with a view to our happiness. Insanity can hardly occur to a mind whose perceptive faculties have been well stored, whose religious and moral powers have been well trained, and whose instincts and feelings are held in check by an understanding well acquainted with the springs of true happiness, and the necessity of self-knowledge and self-command. It is in this point of view that education is looked upon as the remedy for most of the evils of society, and it affords the only hope of preventing that return to barbarism, or despotism, which must result from the rapid increase of dense city population, utterly ignorant of all moral and religious principle, and the unchecked advance of huge masses of human misery and destitution, mental and corporeal, exhibited in every country of Christian Europe.

How admirably has Shakspeare depicted the well-balanced mind, resulting from the proper training of mental and moral power, in what he makes Hamlet say to Horatio:—

“ Since my dear soul was mistress of her choice,
And could of men distinguish, her election
Hath seal'd thee for herself ; for thou hast been
As one, in suffering all, that suffers nothing ;
A man, that fortune's buffets and rewards
Has ta'en with equal thanks. And blest are those
Whose blood and judgment are so well eo-mingled,
That they are not a pipe for fortune's finger,
To play what stop she please. Give me that man
That is not passion's slave, and I will wear him
In my heart's core ; ay, in my heart of hearts,
As I do thee.”

LETTER XIV.

RELIGIOUS SENTIMENTS, MORAL POWERS, AND SOCIAL AFFECTIONS.

MY DEAR F——,

THE doctrines of the German school of mental philosophy appear to be founded on the opinion, that there are several innate, intuitive powers of the human mind, which take cognizance of certain things and their relations. Kant was much struck with the sceptical opinions resulting from the argument, that we have no evidence but from our senses of the existence of external objects—that even the existence of mind is equally difficult to demonstrate—and what we call cause and effect, are nothing more than antecedent and consequent, and may be mere coincidences. The apparent absurdity of such opinions strikes every one, and yet they are very difficult to answer. Kant appears to solve the problem by attempting to demonstrate the existence of a mental power, which gives us the notions we have of cause and effect. This mental power may be considered as an internal sense, similar to those which point out the

existence of God—the moral sense—the sense of beauty, &c. The doctrines of Kant refer many metaphysical questions to authority, just as much as the doctrines of the present French school of philosophy; but the authority of the latter is, that of the fathers of the Church of Rome, and their interpretation of the Scriptures; while Kant goes for his authority to that primary revelation from Heaven, which stamped the human mind with internal evidences of its Divine origin. These innate powers, or internal senses of the human mind, which are just adapted to the wants of man in this world, and which constitute what some call common sense, may be regarded as a continuous Divine revelation by all who will examine the mental powers in their various relations to our God, to ourselves, to our fellow-men, to the earth with its multifarious productions, and to the glorious universe around us. You may say all this is mere imagination, resting on no stable foundation, and it is quite true we cannot demonstrate these innate powers of the mind, but we may infer them from the personal experience of individual consciousness, and from observation of the mental powers of others; such appears to have been the opinion of wise and good men in all ages, and has cheered the hearts of many who have been best acquainted with human nature.

Faith in the existence of a Divine government, founded on what we understand by truth and justice, is the fundamental principle of all knowledge. We cannot turn our senses or understanding in any direction without seeing evidence of wisdom and beneficence, and

sources in ourselves of gratitude and happiness. Christianity takes for granted, rather than teaches, the existence of this faith in Divine power, as the result of the Jewish dispensation ; and perhaps before the pure principles of Christianity can be understood, it is necessary that this faith should be clear to the mind, as it was to the best of the Jews. With this primary faith all else is easy, and Christian missionaries, both at home and abroad, would make their benevolent tasks more certain, if they would first ascertain whether those they are teaching possess this fundamental knowledge. Religion, in its truest form, essentially consists in the exercise of that internal sense which gives us the glorious privilege of contemplating the power, the wisdom, and the beneficence of God. Every object by which we are surrounded administers to this sense of veneration ; the keener the observation, the greater will be the admiration ; and no true observer of the laws of God in nature can be other than a true believer.

In the conceptions of our mind from sense alone, we have ample evidence of a Divine Intelligence in the order, arrangement, and government of matter by laws which evince at every step of our knowledge the most conclusive evidence of all-powerful intelligence. To bring home to the minds of our children this grand desideratum, we must have constantly before their eyes the book of nature ; if we steadily pursue this object, and give them correct notions of the natural laws, we shall not fail in gradually impressing the settled convictions of a divinity. With this knowledge, the future

progress and direction of the understanding in the fundamental truths of Christianity is easy, certain, and persistent. So long as religion is only a sentiment or emotion, it is assailable, and, like other feelings, it is too often borne down by stronger impulses, and readily yields to specious arguments. To be truly a guiding star through life, it must be part of our intellectual nature. In the generality of mankind it is a mere feeling, although as such it is valuable, but its value is enhanced immeasurably by being also the firm conviction of the understanding. The feeling is developed by our mothers when our intellect is incapable of being taught ; in our youth the feeling should be strengthened by arguments addressed to the mind ; this is too generally neglected, and in the next stage of life, amidst the conflicts of passion, all trace of religion is often lost. But if the intelligence has been also impressed, and religious feelings have been strengthened by mental conviction of their truth, how much more powerful will be the bulwarks of resistance to the specious reasonings and sceptical arguments we are certain to meet with at the very threshold of our entrance into life.

Self-possession is a most valuable mental power, and is, or ought to be, a necessary result of unflinching confidence in Divine Intelligence. This confidence must always be allied with that which points to a future state of existence, as the proper prospect of man. We should view the whole of life but as a stage of pupillage, as the dawn merely of existence ; and when we consider the few years which even those who reach the greatest age

spend here, if we feel confidence in the justice of the divine government, what can signify the ordeal of so short a period? Having satisfied our mind of the line of duty which faith inspires, and buoyed by the hope of futurity, ought we not to look calmly on all that happens here? It is from such considerations that perfect self-possession arises, and he who fully obtains self-command from deep-seated knowledge of the human mind, has a talisman, which will enable him to look steadfastly on the greatest dangers into which he may be cast.

A very high degree of self-command can only be obtained by self-knowledge, by fully understanding all the springs of human action, both in ourselves and other men. We must acquaint ourselves with the leading features of our own character; we must know our ruling passions; we must study the influence of feeling, and the kind of intellectual acquirements which should overcome the inferior qualities of human nature. We should not be contented with a knowledge of our own consciousness or personality, and our own sentiments, affections, and instincts, but we should also acquaint ourselves with those of others. All these elements enter into character, but in such different degrees, that no two minds are constituted alike, and we can only know what would be perfection by putting together the best portions of many minds: as a sculptor or painter can only give an idea of true beauty by extracting examples of the best parts from many different forms, and compounding them into one perfect whole.

All the instincts, propensities, social affections, moral sentiments, contribute to the formation of the mind, or rather, they all help to educe and develop those faculties, the aggregation of which constitute our mental and moral personality. What are commonly considered as the evil qualities of human nature, when rightly directed, tend to good, and help to bring forth some of our brightest qualities. The spirit of contention, that propensity which inculcates self-defence, and, when undisciplined, produces the unjust usurpation of might over right, properly employed, becomes a protecting power for the weak against the strong, and educes the feelings of generosity on the side of the protector, and gratitude on that of the protected,—hence the formation of many cases of true friendship. The social affections may be traced to the animal instincts; indeed, many animals exhibit what is *bonâ fide* affection, but in them the feeling here stops, in man it contributes to the formation of character, by the eduction of the more noble and disinterested sentiments. The evils of war are not unmitigated. Some of the noblest spirits that have cheered humanity, have been educated amidst its contentions, and have been thus enabled to display some of the most elevated qualities of the human soul. Love of country is a virtue which is greatly enhanced in those persons who are called upon to defend it. Again, the various contentions among men call forth one of the most important of our moral sentiments, the spirit of justice. Who can have watched the proceedings of children, without discovering how much more some are actuated

by this principle than others? In a large school this is soon discovered, and disputes are referred to those whose sense of truth and justice have raised them in the opinion of their fellows.

We may trace a connected chain from the lowest animal propensities to the highest human faculties, and show the utility of all in the development and improvement of the mind. From our social affections how many of our mental faculties receive instruction? The institution of marriage has been the source of the greatest improvement of the human race,—how much may be traced to it. The ties of family and kindred, all the softer and more beautiful feelings of our nature, result from the domestic affections, and who does not feel

“That the best charms of Nature improve,
When we see them reflected in looks that we love.”

The laws of property are necessary consequences of the institution of marriage; without these laws there would be neither arts nor sciences, and the human race would be barely superior to other animals. To so low a state we must again be reduced when the modern socialists establish their system, but this dream of the imagination, if ever established, must be of short duration, as it is opposed to every conclusion we can deduce from the nature of the human mind, or the principles and laws of the Divine government.

We have assumed the first principle and fundamental condition of the human mind, to be a complete conviction of the agency of Divine Intelligence in the government of the universe. This gives us faith that there

must be truth and justice in the world, and that, as our senses are the works of Unerring Wisdom,—what our minds learn from these inlets of knowledge must be true,—that a tree is a tree, and not possibly a delusion of our senses, as some sceptical philosophers have asserted.* That this faith in the laws of Divine Wisdom and justice engenders the second quality of our personality, so important to our welfare and happiness, self-possession, or that power which enables us constantly to keep guard over, and properly to employ our senses, appetites, feelings, and intellectual faculties. All these constituents of our personality we presume to be born with us, but very differently apportioned to each individual,—some in excessive, some in deficient quantity,—the germs are in all, and only wait time and opportunity for their development. The object of education should be the eduction and training of all, but especially of the intellectual faculties, by which the inferior powers are restrained, and only employed as aids to our welfare, in such manner as wisdom dictates. Self-command argues self-knowledge, and the possession of this can only be obtained by the cultivation and constant exercise of our intellectual faculties. Here we again arrive at the grand desideratum of human improvement, a sound education, as a means of happiness, and the only preventive of error, sin, and insanity. The term education is too generally confined to the discipline and training of

* This question about the reality of substance or matter, when analyzed, will be found to be, like many of the old scholastic disputations, more about words than things.

schools and colleges,—but this is a limited definition,—it should be applied to the whole of human life—it never ceases from the cradle to the grave. We are always learning, and what our parents and tutors neglect to teach us, is acquired in our progress through life by experience, and that, from want of early and sound tuition, too often of a direful nature. The object of nursery training, school and college education, should be to clothe our minds with the armour of knowledge, that we may be prepared to defend ourselves against the assaults of our own passions, lusts, and appetites, and the sophistry and scepticism, which are certain to assail us before we have proceeded far in the journey of life.

To be efficient, school and college education should be extended to a much later period than is usual. The fear of spoiling a youth for the drudgery of business, is a common reason for removing lads from school, at the very moment when education of the mind begins. Before the age of fourteen or fifteen, all the knowledge that has been acquired should be considered as a means to an end, which the remaining years of youth is to bring to fruition. There are very few occupations of which a sufficient initiatory knowledge could not be acquired in three years, and it would be a great improvement if two or three years were cut off from the time devoted to learning professions and trades, and added to school or college training. Nor need we fear, that increased knowledge would prevent our youths from making good men of business. Sound education never did and never will produce such a result ; on the con-

trary, it must make men more ready for the pursuit to which circumstances, or their own choice, have destined them. I suspect that it is an unfounded apprehension that fears a boy may be over educated, even for ordinary trade. Experience has in innumerable instances proved the reverse. If the faculties be well informed, and the moral powers well trained, a youth falls into his proper position in life with cheerfulness and application. It is rather the effect of false feelings engendered by bad education, that spoils a man from following his father's occupation, or that which the circumstances of his position render best for him. Do not let us be afraid of giving our children too good an education ; if we do our duty in home tuition at an early period, and choose good tutors and schools afterwards, we need not fear the result. Good example at home and good tuition at school, never did and never will fail. Experience corroborates what the highest authorities of all ages teach us, that if we train up a child in the way he should go, he will never depart from it.

LETTER XV.

ON THE TEMPERAMENTS.

MY DEAR F——,

EVERY individual of the human family has some characteristic peculiarities, arising from congenital constitution of the large organs of the body, intimately connected with mental and moral qualities, and personal appearances. In other words, the original organization of mind and body stamps each individual personality with peculiar mental, moral, and corporeal qualities, constituting, in fact, our identity. Many attempts have been made to classify these peculiarities under the name of temperaments. In the time of Hippocrates they were divided into four, from a fancied connexion with cold, dryness, heat, and moisture, the respective qualities of what were then considered the only elementary bodies—air, earth, fire, and water. The blood was considered the seat of all vitality, and of almost all diseases; the temperaments were named—

1. The Sanguine, if the red particles predominated.
2. The Phlegmatic, if the more watery parts prevailed.

3. The Choleric, if the bile was in excess. And,

4. The Melancholic, when what the ancients called the black bile was superabundant.

Succeeding physicians have altered and added to this division of the temperaments, but substantially the classification remains; and we now enumerate, as the four temperaments, the sanguine, the lymphatic, the bilious, and the nervous. These correspond with the important functions of respiration, circulation, digestion, innervation, and their respective organs—the lungs, the heart, and its vessels, the stomach and liver, the brain and nerves. It is obvious that some such classification, if founded on natural laws, must be useful in the investigation and treatment of disease. To see an example of any one of these temperaments pure and unmixed, is rare. We do occasionally meet with persons who may be considered types of one or other of the temperaments, but the more general case is that two or more are blended. Probably it is more consonant with health, both of mind and body, that these peculiarities should never predominate, but be so nicely balanced, that the functions of our various organs may harmonize and work together for the general good. In the various stages of civilization, under the influence of customs, climate, &c., particular temperaments may prevail in large regions. The types of the various races of mankind are associated with temperaments. Thus, the North American Indian is generally of a sanguine, and the Negro of a bilious, temperament; while the Mongolian exhibits the lymphatic, and the Indian races the nervous form of

constitution. In the more civilized nations of Europe, we should point to the northern German as the best type of the sanguine; the Netherlander of the lymphatic; while the nervous and the bilious are so mixed in countries distinguished for science and literature, that it is difficult to name any one nation that can stand for the type of either.

Theory has coupled with the temperaments much that is fanciful. While the old humoral notions prevailed, and the circulating fluids were alone referred to as the seat of all diseases, it was the fashion to say that, when the system was lymphatic, the fluids were thin and unstimulating; when melancholic, they were thick and inactive; when sanguine, they were hot; when choleric, they were acrid. Haller attempted to dismiss the humoral interpretation, and founded the different temperaments on irritability of the solids. When great firmness was added to irritability, the habit was bilious; when firm, but less irritable, it was sanguine; when lax, but more irritable, melancholic; and when both firmness and irritability were wanting, the lymphatic temperament was considered to prevail. Richerand added to these two other temperaments—the muscular and the nervous. A later French physician, M. Thomas, attempted a new nomenclature, on the principle “that the relative size of an organ indicates the relative energies of its functions.” The organs of the three great cavities form the basis of his arrangement. In the first cavity lies the brain and spinal marrow, the seats of intelligence, passion, and innervation; in the

second the lungs and heart, the organs of sanguification and circulation; in the third, the organs of digestion and nutrition. In all animals the functions of these organs bear a relative proportion to their size. In the carnivora the thoracic functions prevail, in the herbivora the abdominal: so in the human race; some with large abdomens digest all they eat, and resemble the herbivora; while others, like the carnivora, are dry and thin, and have the abdominal apparatus but little developed in comparison with the organs of the head and chest. This theory of Dr. Thomas, in relation to the temperaments, does not essentially differ from others: his three classes are — the cerebral, which corresponds to the nervous; the thoracic, to the sanguine; the abdominal, to the lymphatic; and, by adding the bilious, we have the usual four temperaments of modern physiologists.

The doctrine of temperaments may be of some use, but we must never forget how much they are influenced by the spiritual part of man, and how much his habits are changed by civilization and education. The ancient inhabitants of Britain, in the time of the Romans, were very different in temperament from their descendants; and the present occupants of Rome itself now differ essentially in constitution, both of mind and body, from the old Romans who conquered Britain.

We all know the diversity of tempers, and the great difficulty of classifying them. We talk of the choleric, irascible or passionate, the sulky, the morose, the stern, the gay, the cheerful, and the melancholic. They

depend partly on mental, partly on physical, constitution. Temper is intimately connected with temperament, and they are both liable to great changes at different periods of life, resulting from physical and mental education, and the influence of health and disease. A severe illness will frequently be followed by a great change of temper. Every one has felt in his own person how dependant the temper is on the regular and healthy action of the digestive organs. What is commonly called a fit of the bile, is notoriously characterized by sudden ebullitions of temper; and every parent knows how the irritability of children is removed by a dose of medicine. In improving the health and vigour of the constitution, we, at the same time, improve the temper: pain is a sore trial of temper, and few can stand the test. In a sickly or delicate child we are averse to any strong opposition to its wishes; hence the foundation of that irritability of temper which many carry with them to the grave. So great is the evil, that, however the feelings of parents may be shocked by the necessity, it is a positive duty to control temper even in children, who are sufferers by disease: it is charitable to the child so to do; otherwise, it will grow up a misery to itself, and a plague to every one else.

In viewing temper as a constitutional result of organization, we are not the less exempted from the duty of calling in our reason to restrain it; we must be the more diligent in educating the moral power to coerce the

physical evil. It is the province of the mind to control and restrain the grosser parts of our nature, with which temper is closely connected.

The nervous temperament is characterized by a highly developed nervous system ; there is extreme sensitiveness to all impressions ; the passions when evolved are impetuous, and the countenance animated and expressive ; in such persons all is excitement and mobility. The great development of the nervous centres gives an intensity to the sentiments and passions, which produce considerable influence on some functions of the body, and gives rise to various derangements. When the imagination is cultivated and indulged, without due restriction by the higher power of reason, where it is allowed to run wild and carry with it the emotions and the passions, the consequences are often lamentable. Lord Byron was a grand example. With the highest endowment of the intellectual faculties, he permitted his imagination and feelings uncontrolled indulgence ; the effect on his character was to deprive him of much happiness, and on his later writings, to render them almost unfit for perusal. It was his misfortune in youth not to have had his moral powers educed by instruction and training, for it would appear to be a law of our nature, that however large may be our original powers, they will remain latent, unless educed by knowledge or experience. The mental powers may be of the first order, while the moral powers may remain undeveloped from want of instruction and training, or the reverse may happen ; great moral power may exist without

much intellect. All these powers remain latent in the great mass of mankind from want of education.

“ But knowledge to their eyes her ample page,
Rich with the spoils of time, did ne’er unroll;
Chill penury repress’d their noble rage,
And froze the genial current of their soul.”

A very large chest, and, of course, great size of the organs of the thorax, are characteristic of the sanguine temperament, in which all the animal functions are splendidly developed. The frame is large, the muscles are powerful, and capable of great feats of strength. The respiratory and circulating organs perform their functions with energy; the countenance is florid, and beams with health; the limbs are well-proportioned. If, with all this, we have a large brain, well trained and cultivated, the rare example occurs of an almost perfect man. Imagination can picture such, and they abound in works of fiction more than in real life.

With magnificent animal powers, we commonly find conjoined a head of less than ordinary size. The mental faculties have generally been neglected, in the admiration produced by external beauty, and its possessor is too often a mere animal, and the slave of his passions and appetites. He delights in exhibitions of strength and prowess,—he can lift the greatest weights, perform extraordinary feats of pedestrianism, &c. The gladiators of old, and the modern prize-fighters, partake largely of this temperament. The sanguine is the temperament of the young, and most common in northern and less refined nations. Inflammation and hæmorrhage are

among the most frequent diseases of this type; activity is its characteristic both in health and in disease; impressions are easily made and dissipated, pain is exquisitely felt, and pleasure enthusiastically enjoyed.

The bilious temperament is characterised by a brown skin, dark hair and eyes, a stern and severe countenance, a compact and well-knit frame, moderate height, broad shoulders, well-developed muscularity, and much strength. This has also been called, not inappropriately, the fibrous temperament. Individuals approaching to a pure form of this temperament are disposed to melancholy, fond of solitude, musing, and meditation; it is sometimes accompanied with great intellectual development, generally devoted rather to science or history than poetry and the belles lettres. Perception is slow, judgment sound, memory uncertain, imagination gloomy.

Persons of this constitution can endure much, whether of fatigue or pain; they are not so capable of great feats of strength, as of long-continued exertion. It is the temperament rather of men than of women. The passions are more of the energetic than the tender, but they are more constant and less versatile than either of the two preceding classes. Most of our great legislators and warriors have been of this temperament, and some nations exhibit more examples of it than others,—the Romans more than the Greeks,—the English more than the French,—the Turks more than the Syrians and Arabians.

“The bilious or melancholic temperament is most frequent in advanced life, and among people of seden-

tary habits. Works of the most laboured industry have been the fruits of this temperament, and minds of the highest rank have borne the burden of its influence. Rousseau and Zimmerman, Pascal and Cowper, are illustrious examples of such as combine the most desponding views of life with the most luxurious means of rendering life happy ; and in the delightful Tasso, and interesting Kirke White, we have melancholy proof that the liveliest imagination, supported by the buoyancy of youth, can neither always avoid nor counteract it."—*Dr. J. Johnson.*

The lymphatic temperament is emphatically the type of animal indulgence : all the organs connected with the digestive functions predominate. The abdomen is large, there is an aptitude to fatten, the limbs are rounded, and the forms of the muscles concealed by a layer of fat. There is languor of the whole system, mental and bodily. The head, especially the anterior part, is small. The face is large, particularly about the mouth,—lips thick, cheeks full, throat large, base of skull broad. The thorax is moderately developed, the shoulders round, the abdomen being the more prominent feature. The mental characteristics of this temperament are dulness and torpidity, disinclination to exert the faculties, things as they are preferred to change, even for the better. If study becomes a habit or a business, a dull routine chosen in preference to investigation, no attempt being made to exceed "the wisdom of our ancestors : " bigotry and superstition may thus be concomitant with great learning. Dr. Johnson,

with a very large brain, combined much of the nervous, with a remarkable predominance of the lymphatic temperament, and was, physically, a perfect picture of this peculiar constitution. Scrofula is the disease, *par excellence*, of this temperament, and Dr. J. is recorded as having been the last child upon whom the efficacy of the royal touch was tried by Queen Anne.

Although it is common to talk of these four distinct temperaments or constitutions, we only occasionally meet with a very marked example of any one in which the individual features are so prominent, that it may be named either nervous, sanguine, bilious, or lymphatic. It is more usual to find a combination of two or three in the same individual. There may be a slight predominance of one; but, in general, the characteristics are so blended, that we find the nervous and sanguine, the nervous and bilious, the bilious and lymphatic, &c. &c., mixed together in endless variety. Thus the various constitutions of mankind are so constructed, that we never meet two which are exactly similar; and nature in this, as in all her other works, has afforded materials for contemplation, reflection, and intellectual discrimination. Amidst the myriads of men who have peopled this globe, no two have been so exactly constituted alike as to have possessed the same habits, the same thoughts, the same activity of mind or body.

In reflecting on the endless diversity of the constitution, of the mental and moral faculties, and the unlimited combinations of these and other influences, are we not led to the conclusion, that we should be ex-

tremely tender in our judgments of each other? We are all the creatures of circumstances, some of which are and have been under our control, but over many of the most important in our early life we can exercise no influence. Our birth, parentage, and early education, are quite independent of us, and how much of health and happiness depends on the management of the first ten years of life. The foundation of our mental and physical constitution has been laid, and if it has been erroneous, ill health and mental weakness may be our lot for life; or if succeeding years improve our bodily health and mental capacity, it may be the labour of our whole life to counteract the evil influences of our earliest years. In the present day, happily, the effects of education of a rational kind are beginning to appear. The vast increase of competition in every position of life, and the increasing numbers of highly-developed intellects, annually produced by improved education, will soon force on all classes the necessity of a more diligent cultivation of the intellectual faculties. An increase of intellect, and capacity for reflection, must lead to a better knowledge of the natural laws by which health, morals, and intellect, are governed. I place health first, because it is the object of our present inquiry; without it, the moral and intellectual faculties never can arrive at so high an eminence as with it, for the matter composing the brain, with which, in our present stage of existence, morals and intellect are connected, cannot be in that high condition for the exercise of its functions, which is necessary for the proper action of all our organs.

There is mutual dependence of one set of functions and organs on others ; health cannot exist without a general harmony of all the organs of the body. The irritability, depression of spirits, languor, inactivity, &c., produced by bad health, incapacitate the individual from that mental exercise necessary for due intellectual energy. Our very opinions, religious and political, depend on our health, the prevailing tone of mind being influenced by predominant feelings dependent on the sound or unsound conditions of various organs. Hence the modifications produced on the temperaments, so that a constitution originally sanguine may, in consequence of mental and corporeal changes, become nervous, bilious, or lymphatic. A long-continued course of injudicious feeding, want of air and exercise, indulgence of various kinds, and neglect of mental and bodily activity, will effect such a change, that an infant born of healthy parents, with all its organs well-fashioned, may become a miserable, rickety, scrofulous child. The reverse of this also occurs,—a delicate infant, born of weakly parents, may, by a very judicious and long-continued system, become a healthy and happy child. The most miserable example of scrofula may, by well-directed means, by attention to all the laws of health, in the course of time become a picture of good health. The period required for these changes is often very considerable ; nature effects them by a slow and almost imperceptible process. Those who would recover their health from a state of chronic disease, must be content to persevere in a right system, for many months before

the constitution in all its parts can be made to work well. There is no royal road to health ; and if a constitution be weak by nature, or has become so by untoward circumstances, the production or renovation of health can only be effected by very determined perseverance. The public in general entertain such false notions of the powers of medicine, and their faith is so akin to superstition, that the majority expect and believe that there is a specific remedy for every disease, which, if unknown to one may be known to another practitioner, and they run from one physician or surgeon to another, never trying any means proposed long enough to know whether it will do good : thus they become confirmed invalids, and the dupes of every quack within their reach. Whereas, if in the early stage of disease they would consult a medical man who deserves their confidence by his knowledge and integrity, if they would be content to pursue health as nature dictates, by laws easy of comprehension, and undeviating in their results, they would gradually recover that vigour which is not to be obtained in any other way.

LETTER XVI.

LAWS OF HEALTH IN INFANCY.

MY DEAR F——,

HAVING traced the general processes of the animal economy, and the various influences of systems and organs in their relations to each other in health and disease, we will now endeavour to show the operation of the laws of health, at various periods of life, beginning with infancy.

Man possesses in common with the lower animals most of the same organs, functions, instincts, and propensities. In his organization he is an animal; his respiration, circulation, and digestion being exactly the same. His organic system is only modified to suit his peculiar condition, just as the organs of the different classes of animals are modified to suit their peculiar circumstances and position in the creation. The digestive and respiratory apparatus of various animals differ in their general form and arrangement, as the objects for which these animals were created differ, although the functions performed by such organs closely resemble each other, in all

classes; the organs being modified to suit the different conditions under which these various creatures live. The erect posture and peculiar physical condition of man, require certain modifications in the form and position of his internal organs; but, in other respects, their structure resembles that possessed by the corresponding organs in the brutes. But in man, we have superadded, the moral and intellectual faculties, and these begin to be developed so soon after birth, that in favourable circumstances, the human offspring soon ceases to be a mere animal. At birth, an infant is precisely like the young of other mammalia. Guided solely by instinct to take its food, it continues for some time even more helpless than the young of other creatures.

The first instinct common to man and animals is that for food, which leads the young automatically to apply to the mother. What wonderful proofs of intelligent adaptation! Here we have parts exactly formed for each other, the nipple beautifully adapted for the mouth, and an instinct given, which at once directs the helpless offspring how to obtain the necessary supply of nourishment. At this very early period, the foundation of health may be laid by judicious management. An experienced and well-informed nurse knows the necessity of attending at the earliest moment to the formation of good habits. The desire of food is instinctive, but it may be regulated by habit; and if regular times of feeding be adopted at the earliest period, much advantage is gained both by mother and child. The periods of feeding should not be more frequent than once in two

hours ; if possible, this rule should never be infringed ; a little crying hurts no baby, and the system of immediate resort to feeding, on every such occurrence, has the effect of increasing the inconvenience it was intended to remove. It is too generally supposed, that every time a child cries it must be for food, and if it continues to cry after having sucked, it is common to consider the milk insufficient, and the poor infant has the farther infliction of being crammed with some thick and unnatural farinaceous food.

Repletion should be carefully prevented, and a good nurse will remove the supply when, in her judgment, the child has had enough. Some children go on sucking until the stomach is so full that it rejects a part. Such children often enjoy good health in spite of frequent sickness, perhaps, because the stomach retains no more than it can digest into nutriment, but those are more vigorous, who, by a happy disposition, take what is just enough, and at the right intervals ; such infants there are, but they are certainly few. In the majority, the judgment of the mother or the nurse is essential to the child's well-being.

At the age of about four months, the infant having hitherto had nothing but the breast-milk, which ought to be the general rule, should now be fed once in the day with food of some consistence, such feeding being very gradually increased,—by this means the process of weaning is much facilitated. It is also of great importance to the child's health, that the change of food should be very gradual, many suffering very seriously

from a sudden alteration of diet. Some children when allowed to live entirely on the milk of the nurse up to the period of weaning, can never be reconciled to the change, but pine away, taking but little food, and that little disagreeing with them. Instances have occurred where from this cause alone, children have fallen into a state of marasmus, or after the long continuance of irritability and disturbance of health, fever has supervened, symptoms of brain disease have been developed, and the child has ultimately died from effusion on the surface, or into the ventricles of the brain.

The proper age for weaning is from ten to twelve months, by which time several teeth ought to have made their appearance, and the child thus enabled to eat some solid food. At this period, habits of regularity should be induced, even if they have been neglected in earlier infancy. Three meals in the day are now sufficient: they should be at the same hours every day, and may consist pretty much of the same food; for children do not require that variety which adults indulge in. It is often injurious to change the food of infants. There are many different farinaceous compounds recommended to every anxious mother, who, with the expectation of advantage to her child, will try three or four kinds of food, and so cause diarrhœa, or other morbid conditions of the digestive organs. Having adopted a food of proper quality, it is wise to adhere to it, although possibly some temporary inconvenience may arise. Care should be taken—indeed, it is impossible to be too cautious on this head—to procure good food. The flour, or

bread, should be the best of its kind. The ordinary London bread is ill adapted for the stomach of a tender infant.

It is impossible to impress too strongly the necessity of inducing habits of regularity and method in the feeding of children ; of confining the food to those articles alone which are necessary for nutrition ; of avoiding all things that are useless but to pamper appetite, and teach children to eat for the sake of eating.

The principal rules to be observed in the management of the health of infants, are regularity in feeding, careful washing night and morning, the most rigid attention to cleanliness, regular hours for sleep, and that in an airy apartment. As far as possible, order should be observed in the earliest management of infants ; but, as soon as the child is weaned, the most strict attention to regularity in feeding should be punctiliously observed. With very good management, and rigid observance of the rules for feeding, clothing, air, and exercise, the evils which surround children in large cities may be alleviated. The kind of food must be regulated by circumstances, some children requiring more animal food, &c., than others ; therefore, what is said on this subject must be considered as general rules, liable to individual modification.

When a child is first weaned, it is advisable to give a small quantity of animal food twice or thrice a week ; and I believe the majority, up to the age of six or seven years, would be well nourished if only allowed meat on alternate days. When they have meat for dinner, they should have no pudding. It is a very bad custom to

have puddings or pies always after meat, and it is worse to give pudding invariably first, as is too much the case at schools. A child will generally prefer pudding, and, having filled its stomach with that which it likes best, will have little inclination for meat after, which is, no doubt, the object of the system. Most parents are delighted, when their children come home at the holidays, to see their round, chubby faces bronzed by the open air into the appearance of health, but which is dissipated in a week or two. The colour goes first, and the plumpness next, being only the effect of a too farinaceous diet. It is not solid muscle, nor even good fat, that is produced by this kind of diet, but a loose, lymphatic fulness, which, carried to excess, and further encouraged by long residence in a damp and unwholesome locality, or too much confinement from air and exercise, may produce a condition favourable to the development of tubercle or scrofula.

That animal food is essential to the strength and full development of the physical and mental powers of man, is a proposition hardly requiring an argument. We deduce the necessity from the superior physical power of those who use animal food, and from laws of our constitution, which prove that we were intended to use it. The love of hunting, fishing, &c., are remnants of the instinct possessed by man, to destroy or capture animals for the sake of food; and the possession of some teeth much resembling those of carnivorous animals, constitutes a pretty conclusive argument that man was intended to use flesh as food. Much more might be said in favour

of the argument, but the general conclusions of mankind in this part of the world are only called in question by an occasional dissentient in favour of an exclusive vegetable diet.

As a child advances in age, the quantity of animal food should be increased. After the age of seven, he should have one meal of animal food daily; and this constitutes the general rule for all ages; but I fear it is only a small minority of mankind who can put it in practice. That it is possible to enjoy a considerable share of health on a strictly vegetable diet, has been proved over and over again; but in all the cases coming under my own knowledge, the parties have not been capable of great endurance of fatigue, nor have they been long lived. In many cases of disease, we see very beneficial effects from a purely vegetable diet; and life has, by this means, been preserved for many years after the occurrence of one fit of apoplexy, and in other diseases resulting from a plethoric habit. There are some persons whose aptitude to make blood is so great that, with only a small allowance of animal food, they become so overcharged with rich blood as to require an occasional bleeding or cupping, or they are liable to fall into some inflammatory or congestive disease. No doubt such persons may be kept in health by a well-regulated vegetable diet. On the other hand, there are persons whose blood is so thin and cold that they require animal food more than once a day. These are extreme cases, but the general rule is, meat once a day, and then in quantity regulated by individual experience. There is

an old maxim, that every one at forty is either a fool or a physician ; and this is quite true as applied to individual experience. Before the age of forty, all should have discovered what agrees and what disagrees with them ; they should have found out by this time the peculiarities of their own digestive organs, and the effect of all articles of food on their stomach and general health. All the particular laws of health, as applying to their peculiarities, such as the effects of particular articles of food, bathing, &c., should have been long known, and always guarded against, so that everything injurious to health may be avoided. This, with great sobriety at all times, and occasional abstinence, are the principal means to establish a sound constitution and long life.

A medical man can only deal in general rules, which each must apply to his own case. No rules of diet are universally applicable. The powers of the stomach vary in different persons, as all other parts of the body vary. In a large family of children there will be the greatest differences in the powers of digestion, and it is folly to insist on applying the same rules to all. If a child is disgusted with fat, it is often injurious to his powers of digestion if he eats it, although it is quite right to persuade him to try a small quantity ; just as in those children who would always prefer to dine on pudding, it is advisable to teach them to eat a little meat. There is so much in custom, that we should endeavour to induce good habits of feeding, as well as good habits of order, &c. By management, a child may be induced to take some, at least, of the kind of food that is best for him ;

and it is precisely this direction of the early habits of children by which a foundation is laid for future health and happiness. A watchful parent will be alive to every peculiarity in a child, and correct that which has any tendency to be mischievous in its earliest bud. This can only be accomplished in the nursery, under the eye of a parent, or a first-rate nurse ; and if left to ordinary servants, is never properly done. How much of the misery of life would be prevented, if parents were more attentive to the nursery ! The subject is almost a science, but which is supposed to come by instinct, anybody being thought capable of taking charge of children ; and we all find, as life advances, and knowledge of the subject increases by experience, how much our early management of children might have been improved.

This is a subject of vast importance to the community, as well as the heads of families ; for how important it is to a state that its members should be capable of rendering it physical assistance in time of need. So much of happiness and well-being through life depends on the direction of the first few years of our existence, that it is a question whether, in a well-regulated state, public means should not be adopted to give this sort of knowledge to all classes of the community. At all events, it is the positive duty of all who are likely to have the superintendence of children, to acquire some knowledge of the proper means of early training. The acquisition of this knowledge would save parents from many an anxious hour, and it would enable them often to prevent,

and in all cases to alleviate, and perhaps cut short, the disorders of their children.

I cannot too strongly urge upon every one likely to become a parent, the wisdom of learning all that can be learned of the practical application of the best rules for the development of the mind and body in health and strength. For this purpose, it is not necessary to have sufficient medical knowledge to treat diseases; on the contrary, what is recommended will lead to a discernment of the wisdom of applying to a confidential medical practitioner in the earliest stages of real disease, as the prudent and proper course. The information which all parents should possess is that which will tend to the prevention of disorder, or to induce that vigorous state of constitution which enables a child to shake off the diseases to which all are liable, without laying the foundation of lasting bad health.

In a country where good medical advice is always at hand, it is most unwise to treat any real illness without assistance. Every one should be very particular in the choice of a medical adviser: it is impossible to be too much so. Evidence should be obtained, not only of his competent knowledge of medical practice, but of his strict integrity and conscientious principles. Having reposed their confidence after due inquiry, that confidence should be unlimited; and it is the wisest and most economical plan to consult him at the earliest period, whenever any symptom has occurred that may be connected with internal disease. Most important maladies may be cut short by proper treatment in the earliest

stage ; whereas, too often, the delay of a few days allows time for the establishment of serious organic mischief, and may confirm a disease which, if not fatal, may be of three or four weeks' duration, instead of as many days. My purpose, therefore, is, not to advise much knowledge of medical treatment, but of that acquaintance with the laws of health which will enable parents to manage children in a rational manner, so as to secure that strength of constitution which will prevent the establishment of disease.

Every child has some peculiarities of constitution which require to be studied. Observation should be busy in watching these peculiarities, because general rules can only be applied with those necessary modifications requisite in every particular case. The most obvious peculiarities observed in infants will be in the stomach and bowels, the skin, or the nervous system. Some infants will invariably reject a portion of their food, others, having a less irritable stomach, will retain it, and throw off the superabundance by the bowels, while those who possess powerful digestive organs will convert all into nutriment, and become too fat. Great diversity will be observed in the action of the bowels—some will be too lax, while others will almost constantly require management to keep them sufficiently so. Here let me advise mechanical means, in preference to physic, for all infants whose bowels are costive. A little warm water, thrown up by an India-rubber bottle, will generally be sufficient, and not at all injurious, whereas giving medicine by the mouth may derange the stomach

and the whole digestive apparatus, when the object is only to promote action of the lower part of the intestinal canal. This advice is equally applicable to adults suffering from costiveness: the difficulty is in the large bowels, which are torpid—the stimulus of the warm water induces them to act. By a lavement, you apply your remedy to the seat of disorder, while an aperient dose irritates a very extensive line of intestine, before your remedy reaches the spot you wish to act upon.

There is also danger in the constant daily use of aperients, such as an aloëtic pill. Cases of obstruction in the bowels occur, where no passage can be obtained, and in which, on examination after death, no mechanical strangulation is discovered. There is a general distended condition of the whole of the intestines, which has been considered to be caused by a kind of paralysis, destroying the contractile power of the muscular coat, and is thought by some practitioners to be brought on by the constant use of purgative medicines.

LETTER XVII.

TRAINING OF MIND AND BODY BEGINS IN THE NURSERY.

MY DEAR F——,

PERHAPS the period of infancy and childhood affords the purest examples of perfect health. It is characterized by a full, plump state of the skin, the limbs are firm and solid, the expression of the countenance, smiling, cheerful and contented. A young child should be fond of motion, and express its delight in being danced about. In the earliest days of infancy, health is indicated by quietude and ease ; a very young baby should sleep twenty out of twenty-four hours, get quickly full, plump, and firm, but not bloated and fat. At this age an infant wakes up only to feed, and enjoys its mere animal existence like other animals, whose enjoyment is probably a feeling of perfect ease. This first stage of human life is soon over ; at three or four months an infant begins to observe, and some of the mental faculties begin to be developed. The fingers are constantly employed in learning the form, size, and weight of objects ; the eyes begin to watch the glare of

everything bright and coloured ; the ears, the varieties of sounds.

A good nurse has at this early age the power of aiding the development of faculties that operate on the future happiness or misery of the child, and even on the man. A cheerful temper, with some capacity for singing, are important requisites in those who undertake the early management of infancy. It is quite clear that the melodious sounds of a pleasing voice, accompanied by the harmony of tune, or even the mere cadence of time, as in nursery rhymes, must exert a very different influence on an infant to the discordant voice of an angry, irritable temper, or the inharmonious sounds of quarrel and recrimination. How different the future of two children, the one in a nursery where harmony of voice and temper prevails, where discordant sounds are rarely heard, where the mother is cheerful, happy, healthy, with nothing to disturb her equanimity, the comforts and elegances of life around her, and good sense to crown all : the other born in a close room, in which every office of life must be performed, where the mother is irritable, her health not good, and her own ill qualities made worse by a brutal and sensual husband, jars and discord abounding, comforts, and even necessities, scarce. How different will be the character of two children brought into the world under such opposite circumstances.

What a lesson of charity this trifling sketch should infuse in all ; and those among us who possess health and happiness may be thankful for having been placed in a

condition favourable to the growth of those mental and bodily qualities which have promoted their formation. It should also be a lesson of sympathy for our more unfortunate brethren, who, without any will of their own, but from the necessary result of birth and education, have been placed in an opposite position. At the same time, we are not to suppose that, unfortunate as may have been our position and education, it is out of our power to amend it; on the contrary, however low in the scale of life circumstances may have placed us, perseverance in a right course will raise us above them. Man has been gifted by his Creator with powers capable of improvement at all stages of his earthly career—it is never too late to mend either mind or body. I very much doubt the general applicability of the favourite quotation—

“Video meliora proboque,
Deteriora sequor.”

If we really saw and felt the better course, we should pursue it; but there is always something wanting—we are not thoroughly and completely convinced that it is the wiser course: we still cling to the gratification of appetite or passion, because we are not fully imbued with the principle, that all which this state of existence affords is preparation for another—that in this world we should sacrifice everything to the improvement of the more exalted parts of our nature—that we should practise self-denial, and promote benevolent and generous feelings as the only sources of true happiness.

We must now proceed to consider the rules of health

from infancy and childhood upwards. The due action of the skin is perhaps the most essential element of a healthy constitution, for if the functions of the skin be well performed, the general health will be good. Of course it is desirable that all the functions should be duly performed, but the influence of the skin on the digestive and other organs is so great, that, when in a healthy condition, it engenders health in every other part. Every one has experienced the influence of a cold bath on the functions of the stomach, a good appetite being almost always an early result of cold-bathing. The skin of an infant should be washed night and morning with tepid water, and, when a few months old, after being well washed at night, in the morning, if the season permits, the whole body should be plunged into cold water. At first one dip is sufficient; but as the child acquires strength, two, three, or four should follow in succession. Many a weakly infant by this means has been made strong, and if strict attention be at the same time paid to the diet of the nurse, a very delicate baby may be converted into a fine, plump, firm, and healthy child.

I believe that where there is hereditary tendency to disease, perseverance in a judicious system will so augment strength and health, that the constitution will be enabled to resist this and other predisposing causes of bad health. How many parents have to lament the loss of child after child, who, at a particular age, are carried off. In such cases, a sedulous examination of all the circumstances that may have operated injuriously on

the health, will often result in the discovery of one or more causes of that condition of constitution which has disabled the patient from combating the attack of some disorder, that might have been parried had the laws of health been better observed. In families where there are several valetudinarians, you may generally trace the mischief to the injurious effects of malaria, over-indulgence of some kind, or gross neglect of the common rules of health.

After washing or bathing, the skin should be well rubbed, friction being another essential to promote a healthy condition of skin. With what diligence a good groom rubs a horse, because he knows there is nothing which so promotes his condition or health. Some agriculturists have tried the experiment on pigs and cows, and, I am told, with great success, the expense being more than repaid by improvement of the animals. Friction also supplies, to a certain extent, the place of exercise, which is essential to the development of the muscular system. Nature has implanted in the young of all animals a pleasure in motion, muscular action being requisite, not only for strength of muscle but of bone; for unless the muscles acquire proper strength from exercise, the bones will not be well developed.

In a limb deprived of muscular power, the bones gradually perish; they become light, weak, and ill-nourished. Such is the dependence of one set of functions on another, that one organ cannot be weakened or strengthened without operating similarly on others.

The development of the thorax is another conse-

quence of friction and exercise,—the actions of crying and laughing, the sudden inspirations attending the expression of joy in the infant, all tend to strengthen the respiratory organs. The healthy action of respiration promotes the proper action of the heart, which consequently sends to the brain and spinal cord duly prepared blood, in proper quantity to nourish those organs, and impart that stimulus which enables them to provide and communicate nervous energy to all parts of the system.

An infant cannot be taken out into the air too much in the summer months, or when the air is mild; but in climates and seasons when the temperature is low, we must be cautious of much exposure. When very cold or wet, the house is the best place for infants, until they have acquired sufficient vital power to resist the skiey influences. When the weather is fine, although cold, and there is no wind, a child of two or three months will be benefited by being carried out, the whole skin well covered with light, warm clothing, and no aperture exposed but just room for breathing. Some nurses cover up the whole face, which is bad. Cases have occurred of infants being actually smothered while carried in the arms. It is also a bad practice to cover a child's face with the bedclothes. Wrap them up as warm as possible, but leave the mouth and nostrils open to the air.

The mental training of an infant under a year old must, of course, be slight. Still it is something to lay the foundation of good; and an intelligent nurse, during

this early period, may do something towards laying the foundation of future education. The capacity of the mind is an original endowment of nature ; great talent will depend on original structure, which we cannot alter. No training will evolve genius from a brain that has not the formation which belongs to genius. As I have before remarked, the mind cannot be compared to a sheet of white paper, on which anything can be written. The differences of capacity are numerous as individuals, and various as their features. Probably all have the same number of faculties, but in different proportions—some having the perceptive organs on a larger scale, others the intellectual, others the moral feelings ; while the more unfortunate, and, it is to be feared, the larger part of the human race, are born with a great preponderance of the animal propensities and instincts. These very numerous powers, faculties, &c., are combined in endless proportions ; hence the illimitable variety of mental capacity. Now, although no training can make a large faculty where nature has given a small one, yet, by actively exercising a deficient faculty, its powers may be greatly increased. It is in this way that a sensible mother can do so much towards the development of talent. On her management of the opening faculties will depend their future expansion. She gives the first impetus ; she directs the senses to the objects on which they are exercised ; her judgment is required to answer the early inquiries ; the result of which is to strengthen observation and increase curiosity. It is very easy to conceive what different and opposite results must be

produced in two observing and inquisitive children—one having a mother able and willing to give some explanation to the very numerous questions such a child will ask, the other being always told not to ask questions, and checked for being inquisitive.

The period from weaning, that is from the age of one year to three or four, is perhaps the most important in life for building up the superstructure of a healthy constitution, both of body and mind. At this age a child should be round, firm, and full, all his limbs should be well covered, the skin should be soft, supple, and smooth. None of his bones should be seen, the limbs should be round, and free from angles. The muscular system should be on the increase, made evident by the firmness of the limbs, and the bones should have consolidated, shown by the openings of the head being closed, the leg-bones straight, the wrists small, the collar-bones very slightly arched, the chest flat, and the abdomen not protuberant. At this age there should be great activity, perpetual motion being almost exemplified by a healthy child. Nature dictates exercise, as the means of developing the muscular and bony systems, by promoting good appetite and good digestion.

Under favouring circumstances healthy blood is formed, the secretions duly separated from it, the brain and nervous system properly maintained, and the child is lively, active, and happy, diffusing joy on all about it. There is nothing which so enlivens a house as a set of healthy children; there is no period of life so happy as that when parents are surrounded by a family of cheer-

ful, active, and lively children. The art of making them so is to be learned, it ought to be learned by all parents, and the practice of the art will be rewarded by that greatest of all human blessings, a happy, healthy, and united family.

It would be only a partial view were we to confine our notions of health to the body alone, because proper training, employment, and activity of the faculties of the mind are essential to the health of the body. A healthy child of this age, with an active brain, will be hourly acquiring knowledge, through its senses, of the ordinary objects by which it is surrounded, and all others which come in its way. The knowledge suitable to this age is of things—the senses and perceptive faculties should be almost exclusively supplied. Much labour will be saved in after life if a child be now taught to make good use of its organs of observation. The external senses and perceptive organs, like others, require training, and if a child is encouraged in minute and careful examination of an object, so as to acquire a complete knowledge of it, a shell, a toy, or even a chair or a table, its organs will be taught attention and accuracy, which is a great point gained. The mode of tuition in some infant-schools is admirable in this respect. Natural objects, as minerals, shells, &c., and representations by pictures, with a simple description of their respective uses, is a kind of knowledge pleasing to most children, easily acquired, and sure to lay the foundation of a wish for more.

It is of importance that the mind should not be much

exercised at this early age; we should not attempt to force the higher faculties; enough work is given to the brain when the perceptive organs are exercised, and the memory stored with a knowledge of objects; facts and inferences will come better afterwards. Many a mind has been ruined by attempts to force it at an early age; even if successful, the advantage gained is the precocious development of some one faculty, to the injury of all others. Very frequently, the over-stimulus of the brain may be looked upon as the origin of serious disease in this organ.

It is, therefore, wise to check great precocity in children, to restrain any very predominant feeling or faculty, to turn the attention to other subjects, and endeavour to amuse the mind by a knowledge of new objects. The feelings as well as the faculties require restraint in some children, and encouragement in others. A very sensitive child, in whom there is a great preponderance of the nervous temperament, and whose feelings are excited by the most trifling cause, should be carefully managed, not left to the charge of a person with an irritable temper; everything being done to prevent the frequent excitement of its morbid sensibility. In these and similar cases, the question of management is very important, whether the soothing or the opposing system is the most successful. Frequent opposition to a feeling or an opinion too often strengthens, rather than diminishes its influence, by the activity and exercise given to the faculties or powers of mind on which it depends. In all peculiarly sensitive children, the better plan pro-

bably is, not to allow the feelings to be called forth, and to endeavour to elicit counteracting faculties and moral sentiments, the influence of which may in time subdue the irritability we wish to conquer. As an example, I may mention what is called an obstinate temper: the question is, shall we best succeed in ameliorating it by opposition, or by a soothing treatment? You know my opinion to be in favour of the latter, on the principle, that the more you call into action any faculty, mental or moral, good or bad, the more you strengthen it. We are both acquainted with illustrative cases of the more successful issue of the soothing than of the coercing system, and experience still tends to increase my confidence in it.

LETTER XVIII.

DISORDERS OF CHILDHOOD.

MY DEAR F——,

I SHALL now take a cursory view of some of the disorders of childhood, which will show the practical application of the preceding observations.

Of epidemic disorders, and those incidental to childhood, like measles, it is not necessary to say much, because management and training cannot prevent them, although their danger is much mitigated by these agents; for we always find healthy children shake off all complaints much more readily than weak and delicate ones. There are other diseases which, by management, may be altogether prevented. A healthy child ought to go through the process of teething without trouble,—but this is not common in large towns, where confinement to the house is necessarily greater than is desirable, for at this age a child should almost live in the open air. The great drawbacks to the health of children in towns should be counteracted by a more severe attention to other elements of good health. In the country, a child

may eat almost anything with impunity, but in large towns, being deprived of sufficient fresh air to carry off superfluities and invigorate digestion, we must be more particular in diet. By so doing, by cold bathing, and sending children into the open air as much as possible, even when the weather is not so fine as might be desired, parents may in cities preserve their children in health, and have the pleasure of keeping them at home, instead of confiding them to the care of others, at an age when the affections ought to be formed and concentrated on their own family.

Many disorders at this age depend on the general irritability produced by the pressure of the growing teeth, in which cases lancing the gums frequently affords some relief. But there is generally something beyond the teeth, a more remote cause, inducing that irritability of fibre which predisposes the child to suffer from its teeth, and this cause is commonly in the stomach. An emetic or purgative will frequently be found efficient in carrying off mischief that was oppressing the digestive organs, and preventing the formation of that proper nutriment which should supply the blood with sound elementary principles. Here we reach a more remote cause,—crudities in the digestive organs. How did they get there? Who is to blame for the illness of the child? The case, in this way of viewing it, stands thus,—a child is injudiciously fed; the food is not properly digested, much of it becomes acid, and various gases are generated. Some of it is converted into bad chyle, which gives bad elements to the blood,—the blood, being imperfectly

elaborated, deposits in the various tissues of the body abnormal particles. The nerves, as well as other organs, being thus thrown out of the standard of health, an irritable state is propagated by them to the great centres in which they have their origin. Various symptoms, referrible to the brain or spinal marrow, are thus produced, or the irritable state may be communicated to other parts, and it is probable that the peculiar condition to which the terms spasmodic croup, or crowing inspiration, have been applied, may be produced in this manner. Such is the intimate connexion of our organs with each other, that wherever mischief begins, it may be propagated by the medium of the nerves or vessels to other parts. Thus, the irritation of teething is transmitted by the nerves to the sensorium, and from thence may be communicated by other nerves to the larynx or wind-pipe, producing spasm in the muscles of the part, which spasm must depend upon irritation, propagated by those nerves which supply the affected muscles.

Infantile remittent fever frequently occurs at this age, and is often dependent on derangement of stomach. The little patient loses his appetite, becomes fretful, and throws his head about,—the skin, especially that of the head, is hot and dry, no perspiration takes place, and there is great accession of fever towards evening. The belly becomes tumid, the secretions much depraved, and the motions clayey, showing imperfect secretion of bile. The urine is very scanty, and often high coloured. The child loses all relish for play, becomes fretful, restless, and unmanageable, or the reverse—heavy and drowsy.

Night after night the fever recurs, accompanied by flushed face, hot skin, great restlessness, —and this continues often for many weeks, inducing great prostration of strength and emaciation of body. This state of things is generally caused by inattention to simplicity in diet. Some kind friend may, perhaps, have suggested to the inexperienced mother that stimulants were necessary, or the child has been too much immured in a close nursery; some mistake in management will in most cases be discovered. Wine or beer may have been imprudently administered, or the diet may have been too full, the stomach oppressed with all sorts of nourishing things, jellies, soups, &c., with a view of strengthening the system; but, far from doing so, they increase debility by causing a depraved state of the functions of the stomach and intestines, preventing the due formation of healthy chyle, and engendering irritability and fever. We never gain our point of inducing good digestion in children if we depart from simplicity of diet.

Acute and chronic inflammation of the membranes of the brain or of its substance are not diseases peculiar to, but very frequently occurring in young children. When we consider the activity of the brain at this period of life, the rapidity with which knowledge is acquired, and the consequent strain on its functions, we can hardly be surprised that, even at this early age, it should be liable to disease. These brain affections in young children are, I believe, more frequent than formerly, from the desire all have that their children should be early prodigies, and the necessity of keeping them in a constant

state of excitement, for the purpose of fulfilling such wishes. This overworking of the brain, and the concurrent nervous excitement, may give rise to many conditions short of inflammation. There may be increased nervous irritability, characterized by restlessness, disregard of the usual amusements, loss of appetite, starting in sleep, heat about the head, &c. These symptoms may be removed by strict attention to diet, quietude, cold to the head, and a few doses of medicine; but it is a condition which should never be neglected, as by early medical treatment more severe disease will be prevented.

When a child has once exhibited symptoms of any derangement in the functions of the brain, it is of the utmost consequence to use all means to keep up the health, and to avoid everything that can have a contrary tendency. There should be no excitement of the mental faculties, everything like learning should be kept in abeyance; the child should, if possible, be sent into a purer atmosphere. Cold bathing in some cases will be found beneficial—the diet should be very simple, and every superfluity forbidden. By good management, a child who has had premonitory symptoms of brain affection may be safely steered through this period of life; but without very great care, life will be cut short, either by the rapid effect of inflammation, or by the more slow process of chronic hydrocephalus.

It is not my intention to enter into a particular account of any disease, but simply to point out those which are more especially developed by inattention to

the laws of health. There are some diseases which, by judicious management and attention to law and order, may be altogether prevented: to these especially I wish to direct attention. There are others, as epidemics, which cannot be prevented, but which will be met and resisted better by a constitution that has been always subject to the laws of health, than by one in the training of which these laws have been neglected. For example, an attack of measles, in a healthy subject, is a mild disease, and runs its course in a few days, leaving behind no unpleasant consequences. In a child badly fed and nourished it is a very serious disease, as it is also in one who has had previous attacks of any complaint implicating the lungs or the air-tubes. Many children are from birth delicate, consequently, more liable to the fatal effects of epidemic diseases; but even such children, if trained in accordance with the laws of health, will acquire powers of resistance to these and other maladies. Judicious management will, indeed, enable a weakly child to resist diseases, which shall carry off stronger children who have not been well managed. The grand position I am anxious to impress on you is, that observance of certain laws in the bringing up of children will place them in an improved condition to combat the skiey influences, and will enable them better to resist the inroads of all those ills which flesh is heir to.

The period of childhood, from four to ten years, is probably the happiest portion of life; all is enjoyment. There are few children who, at this age, are not interesting, few who are not beautiful, few who do not

exhibit mental qualities of an attractive kind : they still possess the simplicity of nature, before art and affectation have spoiled her work. What more delightful companion than a child of this age, who has not been made stiff and formal by tuition. Yet what pains are sometimes taken to destroy all that is natural in children. They are told that to ask questions is inquisitive and impertinent,—that it is vulgar to use any active exercise,—that it is not genteel to talk to, or even to take notice of, any one beneath them,—in fact, everything which nature tells them to do, they are carefully taught not to do. If we would but observe Nature and Nature's laws, take lessons from her teaching, and carry them out in our schools, how immense would be the advantage, even to the next generation. But it is thus that our condition, as God made it, is depraved by our vain teaching; thus the vivacity, openness, and heartiness of children are checked, and they are perverted from the delightful simplicities of nature to the cold conventionalities of art.

A child may be properly instructed, and yet not removed from the school of nature; in point of fact, those persons give most pleasure in society, who have acquired considerable knowledge, and yet have remained unalloyed by affectation. You may possibly ask, what has this to do with health? If a child is checked in those joyous expressions and buoyant spirits which nature dictates, it loses its vivacity, abandons the exercises proper to its age, and, consequently, does not acquire that strength which would have resulted from

following the impulses implanted in it for this very purpose.

This is, indeed, the age when everything should be sacrificed to the acquisition of a sound constitution. Place a child, from three to ten years, in circumstances favourable to the development of health, and it will acquire constitutional powers which will be most valuable to the whole of life. In this point of view, these years are most important; the succeeding seven are of greater consequence to the mind—these to the body. At this age a child should be taking active exercise in the open air almost all day. The mental faculties should not be taxed much; probably the only knowledge pressed should be that which will exercise and improve the perceptive faculties. The forms, colours, qualities, and uses of all natural objects are the kind of information suitable to the age which excites attention, exercises and improves the power of the memory. To fix the attention and improve the memory are perhaps the only points of education really belonging to this period of life.

The daily regimen of children, from three to ten years, may be thus traced:—To rise about seven. On leaving bed, to be immediately immersed, head foremost, in a cold-bath; to be rubbed dry with a moderately coarse towel, and friction continued for ten minutes with the hand or a soft brush. Breakfast at eight; bread and butter, milk and water. Two hours' exercise out of the house; two hours' school; one hour exercise. Dinner,

plain joint and vegetables, and plenty of good bread; alternate days, pudding—meat four days in the week being generally sufficient for children. After dinner, two hours' exercise, one hour's school, two hours' play. Supper same as breakfast. Bed, seven or eight.

Beyond the diseases of childhood—measles, scarlatina, hooping-cough—there are none peculiarly characteristic of this epoch. There is still some tendency to head affections, and those children who have already suffered these attacks should be very carefully watched. But the health and strength never fail to increase if the general rules of management be attended to; and in such cases the disorders of childhood are speedily overcome. Nevertheless, in numerous instances, both measles and hooping-cough leave behind a delicacy and susceptibility which require care. Measles and scarlatina, when very mild, need but little medical interference; but there are no cases which so much require medical judgment, to determine how far we should interfere with the natural course of the disorder. All such diseases pass through certain stages, and it is of great importance in their treatment to do nothing that shall counteract the progress of the disease to its natural termination. In measles, when the oppression of the lungs increases after the eruption has become decided, a case arises for medical judgment,—and very nice judgment too in many cases. A routine practice will not do here, for the very opposite plan of treatment may be necessary in different cases. It is impossible to press too forcibly the wisdom of having sound medical

advice in every case of measles, however slight ; and the same caution is necessary in scarlatina, which shall, in some mild cases, run its course satisfactorily, yet, after the eruption has passed away, very important symptoms occur—dropsy may come on, and leave a very depraved state of constitution for weeks or months.

LETTER XIX.

THE MATURITY OF MIND AND BODY.

MY DEAR F——,

THE period of life from the termination of childhood to the arrival of the body at maturity is one of such general health and vigour, all its diseases being common to the preceding or subsequent epochs, that I shall not dwell on it.

There is a fanciful mode of dividing life into septennial or decennial periods, and considering them as connected with certain changes of constitution and the generation of peculiar diseases. This has always appeared to me purely imaginative. Experience tells us that the maturity of the body or mind does not occur at the same specific period in all, but that it ranges through an interval of at least five, and in some cases of ten years. How many girls, at fifteen or sixteen, have all the attributes of women as fully developed as others at twenty-one. The age of puberty in boys varies equally,—some precocious youths at fourteen are as far advanced as others at eighteen or twenty. The same

may be said to hold in the decline of life, many reaching the age of seventy, or seventy-five, with less infirmity than others at sixty. Seeing these diversities, I have preferred a wider classification, which I think is more true to nature. The period of life we have now to review, that of the maturity of mind and body, may extend from twenty-one or twenty-five, to fifty-five or sixty, or even seventy years.

It has been justly said by Dr. S. Smith, that this is the only period of life which may be increased in duration; we cannot increase the period of childhood or youth, but we may extend the duration of mature life, by observance of the laws of health, to a very advanced age. There are instances in which senility or decrepitude has been retarded to the age of ninety. Cornaro, by his own statement, appears to have been a hale man at ninety-five. It is a very satisfactory reflection, that the period of life which is most rationally enjoyable, from the maturity and power of the intellectual faculties, is that which may be most enlarged by our own good management.

A new element has now been added to those which affect health, in the development and influence of the passions, and it is on their efficient or non-efficient control during the period of youth that the health, happiness, and prosperity of life depend. To a certain extent, the influence of the passions on the body is beneficial to health; they give a natural stimulus to the whole system, which is at this age beneficial. The love of pleasure and of action, hope, ambition, &c., give buoyancy to life, pro-

mote the circulation, and impart vigour to the nervous system.

The effect of proper training and due attention to the laws of health in childhood and youth should now be visible in the development of mind and body. The former should have acquired strength to resist the temptations to which youth is exposed, and the latter should have vigour to resist or overcome the dangers to health and life, which the adventurous spirit of early manhood will frequently court. If education has been properly pursued, a youth, as he approaches manhood, should be acquainted with, and prepared to meet the many dangers which beset him. All our feelings, all our propensities, all our faculties, rightly directed, promote our happiness, health and welfare. "Whatever is, is right."

The early part of mature life is tolerably exempt from disease, but among the few which do occur at this period is that very fatal malady, consumption; the greatest number of deaths from this cause occurring between the ages of twenty and twenty-five. I shall here make a few general observations on that attention to the laws of health which may possibly prevent the development, or at least check the progress of this scourge, and which will equally apply to the general management of health through the whole of this period of life.

Phthisis is well known to be frequently traceable to hereditary causes. It is, however, probably generated, in many instances, by the concurrence of circumstances which engender this and other diseases *de novo*, in

constitutions where there was no hereditary taint. A long course of irregular living, over-application to study, business, or pleasure, inattention to repeated coughs and colds, while sensual indulgences of every kind are persisted in,—these and other deviations from the laws of health generate that condition of constitution, which is favourable either to the deposition of tubercles in the lungs, or to hasten their development. There are so few English families which cannot reckon one or more members who have fallen victims to this disease, that it may even be questioned if there is not in all a certain tendency to this malady, although it seems not improbable that there are some cases in which the disease has been generated, as we know there are others, where one parent has died phthisical and all the children have escaped the malady. The fact appears to be, that certain exciting causes are required to develop the latent tubercles; and if an individual predisposed to this disease lives a very systematic and regular life, he may escape the causes that lead to their development. Probably no case of phthisis occurs which cannot be traced to neglected cold, irregular living, improper diet, or too much confinement in impure air.

It would be too much to say that all cases of consumption can be prevented by judicious management, but in persons predisposed to this disease, every cold does some mischief, and should at once be checked by proper remedies. We should, by the most rigid attention, avoid cold and damp air, great transitions of temperature, all over-exertion of mind or body, and,

indeed, everything that can hurry the circulation or disturb the nervous system. To live always in a regulated temperature, or in a softer climate, should be enforced if possible ; of course, the advantages of climate should be preferred, because the patient can have the additional advantage of going into the fresh air ; but when this cannot be accomplished, we must be contented with confinement to the house during the cold seasons. The barbarous practice of sending invalids away from their friends, when all rational hope is gone, to die in a foreign country, cannot be too much condemned. However, after the actual appearance of disease, much may be done by steady and persevering attention to rules of living ; and we all know instances where the disease has been kept at bay for ten, fifteen, or more years. The general rules of health must be carried out ; where it is desirable to prevent the development of hereditary diseases, all exciting causes should be studiously avoided. Where any tendency to pulmonary disease exists, every unnecessary excitement of these organs should be prevented ; as excessive cold, breathing for any length of time the atmosphere of heated and ill-ventilated apartments, sudden changes of temperature from heat to cold, or the reverse. Our object should be to strengthen the system, and give it power to resist external influences ; it is not only necessary to avoid the causes of disease, but also to put the body in a condition to withstand those causes. Every means of improving the animal powers should be observed. Cold bathing in the morning, if the weather

be mild; a due amount of exercise in the open air—never less than four hours daily—and this at intervals, to avoid fatigue, which should always be prevented in invalids or delicate people; moderate indulgence in the exercises of rowing, cricket, &c.; but it should be studiously moderate. Ease and alternate labour should be the rule in all who value health; and the wisdom of this has been recorded by our legislature in limiting the amount of a day's work to eight or ten hours. How many work more than this, in a so-called day's pleasure, which is not unfrequently a more severe day's work than that of a labourer. It is wise to alternate study and exercise; and those who are specially required to watch their health, should do neither the one nor the other too long at a time.

We should limit the period of study, for if the brain is too long employed, so much nervous power is consumed that the rest of the system does not get a sufficient supply, and the constitution is rendered more susceptible to the influence of cold and other depressing causes. Mental occupation is beneficial to health; the harmony of the system demands it. All our organs require exercise,—among the rest the brain, which is invigorated by proper employment. We are never more happy than when our minds are engaged in some useful pursuit; self-satisfaction is engendered, and a gentle stimulus imparted to the whole system, very beneficial to health. The perceptive organs having been stored with information, the intellectual powers should now be invigorated

by discipline and exercise, to fit the mind for the active duties of life.

Those in whom there is reason to fear consumption, or any other disease, should avoid the confinement and excitement necessary to obtain the great prizes of our schools and universities, many lives being annually sacrificed to this ambition. Unfortunately, the weakest constitutions are associated with the most studious dispositions, and many of those who under these circumstances labour themselves into distinction, fall victims to the effects of anxiety and competition. Many who have succeeded in these objects so exhaust themselves by their exertions, that they are never afterwards capable of any active employment. These results can only be prevented by bearing in mind, that the laws of health may not be neglected with impunity; no persons, and more especially young ones, can confine themselves to the house for weeks, or even for days together, without paying the penalty of disobedience to nature's laws, in the shape of illness of some kind. It is true that an enormous portion of mankind are so habitually invalids, that they have no notion of any other state of existence. From childhood they have lived the slaves of customs most injurious to sound health, and become so habituated to the languor resulting from some morbid condition of the brain or the nerves, that they are conscious of no state but that of an invalid; unless under the excitement of a party of pleasure, an opera, or something of the kind, they are never well. Vacancy of mind and

debility of body go hand in hand, and mutually increase each other. It is lamentable to witness the numbers, who are blessed by nature with capacities of mind and body for the enjoyment of health and happiness, who, from ignorance of the true pursuits of human beings, are doomed to pass life away in listlessness, inutility, and consequently in bad health.

“*Mens sana in corpore sano*” expresses in very few words the highest wish of man, and, analyzed carefully, will show what ought to be our true objects, from the time we begin to think to the end of life. If it be a true deduction that a sound mind leads to sound principles of morality, this short sentence expresses all that is necessary for as much perfection as our nature is capable of attaining in our present state of existence. I would maintain that a really sound mind necessarily includes sound principles of action. With a very sound mind, a full control can be exerted over the instincts and passions. A sound mind and a healthy body require very similar discipline for their attainment; there are some happily-constituted individuals who have been blessed by nature with such harmony and mutual accordance of all the organs, as to possess inherently “*mens sana in corpore sano*.” However, in the great majority of mankind, this can only be attained by observing certain laws, and maintaining constant discipline and watchfulness. A sound body may be acquired by temperance, exercise, simplicity of diet and regimen, combined with peace of mind and moral conduct. The two last items are the result of soundness of mind, which

is essential to perfect health; it is as necessary to regulate and discipline the mind in order to possess health of body, as it is to have the latter in good condition that we may fully enjoy the blessings of a cultivated mind.

We can have no doubt of the mutual dependence of mind on body, and body on mind, and as the stage of life we are considering is that at which both reach their full development, it may be asserted, without question, that on the right use of this period depends the well-being of the rest of life. An enlarged, well-informed, well-disciplined mind *must* lead to moral excellence; the combination of intellect and moral power constitutes wisdom, and a wise man will make health a most important object of life. Our argument reduces itself to this,—that the primary want of man is a well-disciplined mind. From the possession of this, everything else follows,—health and vigour of body, pure and elevated feelings,—therefore, if we can engender a sound mind, we obtain all the rest, and we may almost sum up the laws of health in the one word—"education."

Education, in its full, extended, and proper sense, should mean a continuance of mental exertion and discipline, carried on much beyond the limit of school or college. It is too frequently limited to a smattering of information, obtained at an ill-directed school. Parents are too often deceived into the notion, that if they send their children to a school which professes to teach the elements of knowledge, they have given them a good education. The true definition of the term education should include much more than the mere primary or

elementary knowledge of a school. No one should be considered well educated until he has acquired some knowledge of himself, the nature of his mind, and the organization of his body. Without this knowledge, it is impossible that any one can possess the power properly to regulate his mental and corporeal functions. In this sense, an educated person will know how best to conduct both mind and body, in order that he may extract the greatest amount of happiness from the circumstances in which he is placed, and under which he is destined to live. He will be able to estimate all the value of the position he occupies, to make the best of that lot in which his fortune has been cast, (and he will find none from which satisfaction cannot be derived.) Whatever may happen to him, his mind will be in a condition to form a judgment of the best line of conduct under any circumstances.

Without the force of mind supposed under the preceding section, education cannot be said to have accomplished its proper object,—that of fitting a man to fulfil his duties in life with judgment and discretion. Grammar, language, history, mathematics, are but means to an end; they only constitute the necessary exercises for the development of that intellectual power which will elevate us above the influence of vanity, self-esteem, sensuality, bigotry, superstition, the violent impulses of feeling, and unregulated passion. True education should give us mental and moral power to keep within proper bounds all the feelings, affections, propensities, and passions, and not allow any of them to

be masters. How few there are who cannot trace all the misfortunes and *contretemps* of life to this want of power to regulate impulse and feeling. Many an anxious year has been imposed on most men by giving way to a passion, which would have been put under restraint had intellect been wise enough and strong enough to rule.

Education is the remedy for these, and, perhaps, of all the other evils that afflict the human race. Moral and physical diseases, political and religious differences, the evils of superstition and scepticism, the calamities of war, pestilence, and famine, over-population and pauper misery, all will be at least ameliorated by an extension of the dominion of mind. We know that diseases both of mind and body will be prevented by a knowledge of those laws by which they are regulated; if we become acquainted with the natural laws under which the organs of our frame perform their functions, and the influences which act in opposition to these laws, we shall arrive at conclusions by which the deranging effects may be controlled, and thus prevent disease. This may be verified by the statistics of our life-insurance offices, and those derived from the registration of diseases and deaths. Innumerable proofs might be adduced of the prevention and amelioration of epidemic diseases by improved medical treatment, and a better knowledge of the laws which regulate the generation and propagation of disease. Every insurance office also affords proof of the greater value of human life, no doubt resulting from an increase and diffusion of the knowledge how best to prevent, as well as to treat disease.

The ameliorating influence of education on political and religious differences, the events of our own time are daily demonstrating. Even in Ireland, small as is the middle class, and low as is the general state of education—experience has shown even there the opinion to be gaining ground, that no good is to be obtained by tumult, and that all grievances, if they be really such, must in these days be remedied by the force of public opinion, which is, in fact, extension of the dominion of mind. Observation has taught us, as one of the laws of nature, that minds differ as much as faces, and that all cannot think alike. By certain combinations of faculties we are each compelled to think peculiarly, and although education and intercourse may modify, they will never entirely remove such peculiarities. Many good effects may be seen resulting from difference of opinion; it is a stimulant to mental exertion,—argument brings forth and strengthens the faculties, and we are thus taught to inquire into the truth of opposing principles. Another important consequence of a knowledge of the laws regulating mind and mental operations, is to teach forbearance towards those whose opinions are adverse to our own, and to induce the desirable compact, that in some matters we should agree to differ.

The calamities of war, pestilence, and famine, are all ameliorated by education. Every succeeding war is carried on with increased humanity; pillage and plunder are averted by a well-regulated commissariat, and an abundant medical staff neutralize to a great extent the necessary evils of battles. Attention to hygiene and

sanitary laws has robbed pestilence of many of its evils ; and as real and practical knowledge becomes more diffused, many of the remaining hot-beds of infection will be destroyed. Improved cultivation of the earth has rendered famine less dire than of old. Increased intercourse of distant nations, another effect of advancing knowledge, tends to restore the equilibrium of production, for while an unfavourable season may have injured the harvests in one part of the globe, in another the crops will have been larger than usual ; and the famines which formerly decimated countries have been prevented in many, and may be in all, by increased civilization. Advancement of knowledge must more clearly show that emigration is the only possible means, consistent with Christianity and civilization, of overcoming the evils of excessive population. Ages will elapse before the whole of the earth's surface will be fully peopled and cultivated, and a very small portion of the expenses of wars and standing armies will suffice to transport our surplus-population to new fields of enterprise and happiness.

Many think that too much is expected from education—that we have at present but little evidence of general progress in intelligence and moral excellence ; and some will say that education has proved a failure. That intelligence and moral excellence have not made as much progress as philosophers and the friends of general education had hoped, may be admitted ; but let any candid inquirer compare the morality and conscientiousness of the present day with the extent of

such virtues in the reign of Queen Anne or the first Georges; and blind indeed must be the intellect that will not admit the fact. The virtue of our women and the honesty of our statesmen are incomparably superior to what they were respectively in the last century. The progress of all human improvement is slow, and it is only by examining considerable periods of a nation's life that we can trace improvement. The art of printing will prevent men from again relapsing into barbarism, and when we recollect that it has only been known three hundred years—that during that period all sorts of obstacles have been thrown in its way—that, in point of fact, a free press and mental freedom have only existed, even in this country, for less than half a century—when they reflect on all this, the friends of human progress need not despair.

LETTER XX.

EFFECTS OF DISSIPATION AND MENTAL EXCITEMENT.

MY DEAR F——,

WE have now arrived at a period when disease and death are at their minimum. All the powers of mind and body have reached maturity, and continue for thirty or even forty years capable of full employment. This is the active period of all our faculties—animal, sensitive, and intellectual. Ambition has now determined what shall be the objects of our life—marriage and the cares of a family absorb part of our attention. The ambition of surpassing those with whom we started in life, or the desire to provide for a family, is the grand stimulant to the exertions of most men, without which many of us would slumber life away in passive indolence. To be content with bare sufficiency may be natural to the ignorant clown; but as intercourse and civilization advance, the taste for comforts increases, and with this increase the exertions to obtain them grow, until we arrive at that stage of civilization when population and competition have augmented to a degree which renders

untiring industry and energy requisite to obtain any position in life.

The early portion of mature life is almost free from disease. Hope, sanguine views of life, the romance of castle-building, confidence of success, and the prospect of happiness, all urge on the aspirant, and as yet he little dreams of any vanity in human wishes. Full employment in business or pleasure, the excitement of a very active life, and a mind satisfied with its pursuits, all tend to keep up the health ; if prosperous in circumstances, fortunate in marriage, gifted with good sense and a right view of life, he may pass through this phase of existence in a state very nearly approaching to happiness, and almost realize Thomson's description :

“ But happy they, the happiest of their kind,
Whom gentler stars unite, and in one fate
Their hearts, their fortunes, and their beings blend.
Who in each other clasp whatever fair
High fancy forms, or lavish hearts can wish.
An elegant sufficiency, content,
Retirement, rural quiet, friendship, books,
Ease and alternate labour, useful life,
Progressive virtue, and approving heaven.”

Although the early part of mature life is almost exempt from disease, yet the foundation may now be laid of some of the disorders of middle age and declining life. Perhaps few lay down any regular system or rule of life, being only guided by circumstances as they arise—now driven one way, and now another, without rule or compass. The majority of men are led by the few. One individual of a clique, an office or a con-

nexion, generally takes the lead, and the rest follow for good or for evil. If the leader be a man of sense and morals, the flock may be directed in a right and happy course. In every assemblage of men there will be leaders of opposite principles, all of whom will have some followers; but those gifted with wit, humour, and convivial talents carry off a large number, who adopt the conclusion, that a life of pleasure is the only choice for a rational being. Thousands are thus led—less from taste and inclination originally, than from the necessity of their nature—to follow in the wake of others, never having had the good fortune to have been taught to think for themselves. How many have sacrificed health, happiness, and reputation on this vanity of human wishes—the love of pleasure.

Under this pursuit, health sooner or later gives way, the best constitutions generally withstanding the longest, while the greater number perish in what is called the seasoning; and those who survive the early years of a dissipated life fall victims to gout and diseases of the liver or kidneys, and become permanent invalids before the age of forty. How melancholy it is to observe the gradual decay of a man, whom you had known at twenty-five a picture of health and strength, the pride of his friends, with every prospect of a life of useful happiness. He may belong to an office where pleasure is voted the one thing to be pursued; you watch him as he advances in life—perchance he marries, and his home not being the happiest, or dissatisfied with the quiet enjoyments of domestic life, he rejoins the riotous companions of his

youth. You gradually observe a change in his appearance; he is less clean in his person; he becomes careless of his dress; his countenance loses its health and the expression of self-satisfaction; he gets thin and haggard—perhaps neglects a cold caught after one of his nightly enjoyments, becomes a victim to some severe disease, and is soon removed from the scene. Another votary of “*Vive la bagatelle*” will at first become corpulent, and seem to be bursting with health; his potations appear to do him good, and perhaps he boasts that his mode of life agrees with him. Gradually, however, his face loses its rotundity, becomes flabby, flaccid and sallow; his strength diminishes, though his corpulence does not; he becomes irritable in temper, and his mind less capable of exertion; some of the varieties of indigestion attack him, or a fit of gout occurs. Continuing his irregularity of life, his digestive organs are perpetually deranged, until some organic disease of the heart or other viscera attacks him, and death carries him off before the age of fifty.

Where some moderation and regularity of life is observed, but considerable luxury indulged, a somewhat modified catastrophe takes place. A full table, with what is considered moderation in wine, beer, &c., leads to corpulence. This should always be regarded with a certain degree of alarm—it proves that the ingesta are too nourishing, or that sufficient exercise is not taken to carry off the superfluity. Most frequently both causes operate—people who get corpulent take but little active exercise; if they walk, it is slowly, and they creep along

without much exertion. Corpulence should always be looked upon with suspicion, and, in excess, should be considered a disease. Over-indulgence, excess in eating, or drinking too freely of malt liquors, sleeping after meals, riding in a carriage, to the almost entire neglect of more active exercise, much promote corpulency.

It often happens that very fat people eat but little, less than many very thin persons: they may possess that aptitude to fatten so much coveted by the farmer for his cattle. Generally, however, fat people have discovered what is best; and although they may not eat much, they take care that what they do eat shall turn to account. It is not unlikely that, after arriving at a certain stage of corpulence, their appetite may fall off, nature wisely hinting to them that they have already eaten too much. Very fat people seldom live to great age, or if they do, they gradually lose their fat. The first appearance of corpulence should act as a warning, and it should be arrested by exercise and less fattening food. Great corpulence should be looked upon as a positive disease, and, as such, no means should be neglected to prevent it, and this may be done ninety-nine times in a hundred. I would limit animal food,—and that not to exceed a quarter of a pound—to one meal a day; the two other meals—breakfast and tea, or supper, to consist of bread and butter, or even bread alone, if less abstinence will not do. This, with active exercise, would stop the progress of fattening, but exercise will be of no avail unless it be active; if on horseback, we must not be contented with a foot pace, but a

good hard trot of twelve or fifteen miles a-day; if on foot, the pace should not be less than three to three miles and a half per hour. By similar means, corpulence will be cured or prevented; the active and temperate habits engendered by the process will be an ample recompence for the sacrifice, the languor and misery of indigestion being superseded by a feeling of health, strength, and mental gratification.

If we neglect the warning of increasing corpulence, and continue the habits of indulgence which have led to this unnatural condition, various disorders are engendered, which, sooner or later, establish themselves in the shape of some organic disease, or gout, or rheumatism. How many, before the half of life has passed away, become permanent invalids, seldom free from some of the many forms of indigestion, or repeated fits of gout, or perhaps both together, or alternately. What is life worth under such circumstances? A fit of gout is looked upon as a relief,—but what a relief!—one which, sooner or later, unless it acts as a warning, establishes disease in some important viscus. Taken as a warning, it has been useful in timely checking a mode of life that must engender fatal consequences. When a man who has any claim to sense has had a fit of gout, he will reflect on the evil consequences, and adopt any system of life by which future attacks may be prevented. This may and has been done, if the patient has firmness and perseverance to carry out the necessary regimen, giving to the rest of life health and vigour of body, and cheerfulness of mind.

Ambition in excess is a very prolific source of disease during the active period of life. Whatever overstrains or overtaxes the mind, whether study, or unceasing application to business, affects the healthy functions of the brain and nervous system. The care and anxieties of a family may aggravate the mischief. The difficulty of providing for children, the necessarily enormous expenses of modern life, the closeness of competition, and the consequent strain on the faculties, where they are not the strongest, too often lay the foundation of disease in the most sensitive and most amiable of mankind. False notions of ambition, and over-estimation of our talents, are frequently at the root of this evil. All start with a hope to reach the highest pinnacle of distinction in their respective pursuits : of course all cannot succeed. Nature herself puts in objections. Some men she endows with organs of such surpassing excellence, that others, with double the application, cannot keep pace with them. Some are more successful than others, from what is commonly called luck. A fortunate concurrence of circumstances places an individual in a position where his peculiar talents tell ; while another, of equal or even better abilities, may never have a similar chance. It must be admitted, however, that in most of these comparisons, there is a superiority somewhere in the successful candidate. Some men join to a moderate degree of talent, great knowledge of mankind, and apply, in addition to a full acquaintance with their profession, craft, cunning, or tact to push themselves forward.

Some have more self-esteem, and, consequently, greater confidence in themselves, and this is a most important item towards success in life.

In the present state of society, it is, perhaps, wise to be content with maintaining our position. To aim at very great success, or wealth, either over-taxes the mind, or leads to disappointment, dejection, and often despair. In the first case, over-taxing the mental faculties either induces chronic disease of the brain, or extreme irritability of the nervous system ; and, in numerous instances, that condition of mind is induced which varies in every degree, from simple hypochondriasis to confirmed melancholia. Diseases of the heart are, doubtless, sometimes increased, if not produced, by those alternate conditions of hope and disappointment which attend large commercial speculations, as well as all kinds of gambling. This kind of excitement has now involved most persons who are directly or indirectly concerned in the production or distribution of articles of great consumption, and which are subject to much fluctuation in price.

The desire of wealth is the mania of the day, and instead of being regarded as a means of happiness, its true object is lost sight of ; it becomes in most instances the only end of life, and everything is sacrificed to its attainment. Often, when success has crowned the efforts of its votary, a weakened mind and diseased body, produced by intense efforts for success, alone remain to reward the conqueror, who, in possession of the power to purchase every object upon which his heart has dwelt, finds he has lost all relish for the enjoyment.

This is a common case ; and, together with all in which health and peace of mind have been sacrificed at the altar of gain, may be adduced as an example of a false principle of life—of a mistaken view of the real purpose of human existence.

The proper object of life is the development of the mind, and this, the true end of all our exertions, should never be lost sight of ; for it is one which never disappoints. It can only be attained by keeping up the activity of the faculties ; for the brain, as well as the muscles, requires constant exercise to maintain its power : unemployed, it loses what it once possessed, and may sink into mediocrity from a comparative state of excellence. If the mind is altogether absorbed in the pursuit of wealth, it gradually loses all desire for that superiority which alone satisfies its higher faculties. In the midst of those necessary avocations upon which the welfare of our family depends, we should spare some moments to maintain at least that degree of improvement which had been acquired : it is essential to the general health that we should do so. We know that bodily health cannot be maintained without due exercise, neither can mental,—they are mutually dependant, and to neglect one is to neglect the other. As we advance in life, the importance of a healthy mind is even greater than a healthy body, for the one enables us to bear the evils of the other, and the decay of the body precedes that of the mind. In our progress through this nether world, a rightly-judging, well-stored mind compensates for many disappointments, and alleviates the effects of the vanity

of our wishes ; for there are few who, before the age of fifty, do not find many of the aspirations of early life,—vanity.

It is hardly an exaggeration to assert, that the most important law of health is a well-regulated mind. The tone of the mind has the most important influence on health. If a man's pursuits are rational, and in harmony with the laws of God—if he walks in the ways of wisdom, and his thoughts are directed to proper objects,—if he keeps his mind in an active state by the constant acquisition of knowledge,—if his meditations lead him to have constantly in his mind's eye that he is not a mere dweller on earth, but a being destined to exist in a more exalted state, where the mind which he is now educating shall live in brightness inconceivable to his present thoughts,—the self-satisfaction so produced will have the most exhilarating influence on his health.

When I say we cannot at present conceive the brightness with which our intellect shall, in a more exalted state, grasp the objects of its contemplation, perhaps the statement rather exceeds the fact ; for we do sometimes conceive that the mind is capable of much more than it has ever yet accomplished ; a distant beam of light, a splendid imagining, will sometimes cross its path : a purer ray of hope and imagination will paint visions of things which the eye has never seen, nor the ear heard. Such, among other contemplations, my dear F——, speak so plain a language, that a future state of being appears almost as palpable as that we now exist.

“ Seized in thought,
 On fancy’s wild and roving wing I sail
 From the green borders of the peopled earth,
 And the pale moon, her duteous fair attendant,
 To the dim verge, the suburbs of the system,
 Where cheerless Saturn, ’midst his watery moons,
 Girt with a lucid zone, in gloomy pomp
 Sits like an exil’d monarch : fearless thence
 I launch into the trackless deeps of space,
 Where, burning round, ten thousand suns appear,
 Of elder beam, which ask no leave to shine
 Of our terrestrial star, nor borrow light
 From the proud regent of our scanty day.
 But oh, Thou mighty mind ! whose powerful word
 Said, Thus let all things be, and thus they were,
 Where shall I seek thy presence ?

“ O look with pity down
 On erring guilty man : not in thy names
 Of terror clad ; nor with those thunders armed
 That conscious Sinai felt, when fear appall’d
 The scatter’d tribes ; thou hast a gentler voice,
 That whispers comfort to the swelling heart,
 Abash’d, yet longing to behold her Maker.”

That an inordinate pursuit of wealth and distinction is to act on a mistaken view of life, has been established by moral philosophers both in the ancient and the modern world. Mankind, however, disregard the tuition, and continue to pursue wealth as the one only good, and many place so ridiculously high a value on its mere semblance, that they indulge a display and sham possession of it for a few years, at the expence of distress and poverty for the rest of their lives. In this, as in most other questions, there is a happy medium, and that is, to exert our energies to obtain independence, a moderate sufficiency, or more, if it can be done without

the ^{*}sacrifice of health, happiness, or reputation. No man can possess peace of mind who is not independent—who cannot by his own exertions provide for his family. There is no condition of life, which tends to a higher degree of health, both of mind and body, than when, by the exertion of his talents, he feels in possession of sufficient for the wants of his family, and in the event of his death he can leave them above difficulty. The necessary exertions to do this are legitimate, and seldom such as overtask any of the faculties. But when, in addition to this, we are anxious for present display and future fortune, we aim at more than can be generally accomplished, and many thus prepare for themselves an early grave, by excessive taxation of the faculties of the mind and the strength of the body.

LETTER XXI.

THE MERIDIAN OF LIFE.—INDIGESTION.—GOUT.

MY DEAR F——,

AT the age of fifty, the prospects with which we started in life have been realized or not—we have sunk or risen to our proper level, and our experience now enables us to judge what are likely to be the pursuits, the advantages and disadvantages, of our position for the remainder of life. Few realize all their expectations; those who succeed to a considerable extent may be considered the fortunate exceptions. I fear the majority must be content with various degrees of disappointment, and most men, before this age, have discovered some vanity in human wishes—what they had anticipated with great desire having proved, when acquired, to be as sounding brass or tinkling cymbal. Generally speaking, these disappointments are of our own making,—we have expected too much; from ignorance of our own nature, and the relations of the world around us, we do not regulate ourselves, our families, and our social habits, with the wisdom which would have

resulted from better knowledge. As these questions bear much on the health of this period, and by their influence lay the foundation of many of the disorders of old age, it will be desirable to take a slight review of them.

The most common sources of anxiety at this time of our life arise from our worldly position, our family, the state of our health, and the probability of life,—the depression of mind consequent on the decay of bodily vigour,—on the transition from a state of hope and anticipation to a state of reality and possession,—and the too general neglect of that training of the mind, which would still keep alive the cheering influence of hope, even beyond the confines of our earthly prospects.

“ Hope springs eternal in the human breast,
Man never is, but always to be blest.”

The excitement of hope appears to be necessary to a state of health ; so long as hope hangs on our path we are cheerful, and, in general, may be called happy ; our organs perform their functions with regularity, our appetite is good, our digestion vigorous. But when the cheering prospects of hope pass away, to be succeeded by some shade of disappointment, the enjoyment of life is changed for the endurance of it ; all our senses, satiated with the stimulants which have been applied to them, cease to afford us satisfaction. We lose our relish for food, eating rather as a duty than a pleasure, and we are induced to increase in the indulgence of wine, &c., with the delusion that this will keep up our strength, until

one of the many forms of dyspepsia destroys the powers of our stomach, and melancholy and indigestion become our companions, perhaps for life.

The influence of mental emotion on health is of hourly occurrence, and the rapidity of its action is often wonderful. How instantaneous is the operation of fear on the abdominal viscera; this fact must be known to every one; and it enables us to comprehend the effects that will be produced on these organs by the constant and long-continued action of the depressing passions. Sudden emotions produce sudden effects; but the long duration of less violent emotions induces at first functional derangement, and afterwards chronic disease of some of the organs concerned in digestion and nutrition. Great is the variety of symptoms in different constitutions from similar causes, but they all hinge on that invariable concomitant of an over-worked brain, dyspepsia, which would appear to be the penalty always resulting from that unfailing attendant on high mental development—*anxiety*. Whether mental excitement be produced by excessive devotion to literature, science, or commerce, the result is the same: some form of dyspepsia is certain to be engendered by that excessive taxation of the mental faculties which characterizes the age in which we live. This state of things is bad enough in England; but we learn from our medical brethren in the United States of America that it is worse with them; and this is just what we should expect, for no people so incessantly keep up mental excitement. From childhood upwards, through every stage of life, all is unceasing

agitation among the educated classes. Parents are not satisfied unless their children are prodigies, and the poor things are bored with infant manuals of botany, geology, and other sciences. Political and religious, or rather sectarian differences, and the gambling of commercial competition, so very generally occupy the busy heads of our American cousins, and keep up a constant and excessive stimulus to the brain, that insanity, as well as dyspepsia, is said to be as prevalent with them as with us.

I shall illustrate these views by two or three examples of indigestion, and a few remarks on gout, as among the most frequent diseases of the meridian of life. The subject of indigestion, in all its forms, would alone fill a volume. I have pointed out some of its causes, but can enter into no detail of its complicated varieties. Having shown some of its more prominent features, I need say no more on the wisdom of adopting any means that will prevent the mischief; and the following examples may be considered as similar to hundreds met with in practice. Dyspepsia appears to have been unknown to the ancients, who obtained wealth without that dreadful strain on the mind, which has arisen from modern speculation and competition. The reaction of impaired nutrition on the whole nervous system—that is, on the whole body—engenders the various and anomalous symptoms of the disorders known under the general term indigestion, sometimes assuming the type of neuralgia and analogous complaints,—at others, every

shade of disordered mind, from mere nervousness up to actual insanity.

A. B., the father of a large family, of a very anxious disposition, and of considerable application to business, (being seldom occupied less than ten hours daily) obliged frequently to take his meals irregularly, of a bilious temperament, and rather disposed to melancholy, began to be troubled, about the age of thirty-five, with symptoms of indigestion. His relish for food declined, one article after another appeared to disagree with him, he felt uneasy after eating, his nights were more frequently interrupted by dreams, he woke in the morning with a dry mouth and a furred, swollen tongue, and he no longer went through his daily business with the alacrity he was wont to do. From being capable of eating and digesting any kind of food, his appetite became capricious, and if he did eat a tolerably full meal, he felt uneasy at the region of the stomach. Occasionally he had restless nights after some particular articles of diet, which he was thus taught to avoid. He was afterwards attacked with spasmodic pains in the region of the stomach, extending round the chest to the shoulder-blades, which, after keeping him awake for an hour or two, would subside, and he got up in the morning as if nothing had happened.

Like many men of business, he either neglected these early symptoms, or giving them that very indefinite term, bilious, would take a pill and draught occasionally. Having been taught caution in his diet, the attacks were

not for some time very frequent, but at length they became so, occurring always after dinner, with more or less severity. Gradually he lost all relish for food, rose in the morning languid and unrefreshed, became very nervous, fanciful, and alarmed. He still, however, continued his application to business, but had medical assistance, and to a certain extent followed the advice given him; nevertheless, was not altogether free from his attacks of indigestion, so that he was for years an occasional invalid, seldom feeling quite well, and being obliged to be very cautious about his food. He also suffered frequently from rheumatic pains. After some time he began to think such a condition ought not to be endured if a remedy could be found, for although he was always able to attend to business, he was obliged to forego dinner-parties and society of all descriptions, as an extra glass of wine, or the slightest irregularity, would bring on an attack of indigestion. After enduring this state of things for some years, he was induced to try the effects of a very rigid system. His habits had always been temperate, rarely exceeding a glass of beer at dinner, and two or three glasses of wine occasionally. Since he had been subject to indigestion he had seldom partaken of any supper, which before had been a regular meal with him, and was usually succeeded by a glass of whiskey or brandy and water.

Chronic cases of any kind can only be subdued by long perseverance in proper regimen. It is obvious that a disease like indigestion, gradually coming on, checked but not subdued, continuing more or less for years, must

ultimately produce a condition of stomach not to be remedied by any sudden change of diet, or application of remedies. The inner coat or lining membrane of the organ will be more or less diseased, perhaps congested, thickened, and in some cases ulcerated. The other organs concerned in digestion will be implicated, the liver never doing its duty in a perfectly healthy manner; the nutriment is ill-concocted, and the vessels which absorb and carry it to the blood partake of the general derangement. The functions of the intestinal tube are always disordered in such cases, and the repetition of frequent doses of aperients is alone sufficient seriously to damage them, and hence the life-long necessity of some invalids regularly to have recourse to pills or other aperients.

Our patient was advised to pursue the following system for at least six months: having suffered so long, and being himself convinced that nothing less than a very rigid system, long pursued, could possibly reinstate his health, he wisely determined to adopt the course that was recommended, and this he did with undeviating perseverance. He was directed to rise at seven, and to sponge the body with cold water from head to foot as soon as he was out of bed. To breakfast at half-past eight on tea, toast, and a little bacon, then to conduct his business as usual, and dine moderately at half-past one on roast or boiled meat, with toast and water to drink. He took another meal about seven, consisting of tea, bread and butter, or a sandwich, and went to bed about eleven. This regimen he continued for one year,

with occasional aperients and tonics, and his perseverance was rewarded by complete recovery by the end of this time. His stomach now digested its food better than it had done for years, and he found that although he could take wine without suffering from it, he was never so well as when he drank water only, and this has now been his practice for years, taking a glass or two of wine when circumstances rendered it necessary. Before he adopted this regimen he could drink neither wine, beer, nor spirits, in however small a quantity, without suffering pain. Our patient was at times persuaded by various friends to try different varieties of wine or beer, for the supposed necessity of maintaining his strength, which effect, however, they never had, and he now says that he is better able to go through a hard day's work on water only, than he was formerly when he took stimulants.

A more aggravated case was the following. H. S., aged fifty, in a course of prosperous business had accumulated a comfortable fortune, with which he retired; but, like most men of business, was incapable of living an inactive life, and sacrificed a good deal of property in various schemes. He was of a lymphatic, bilious temperament, was exceedingly vexed at his own folly, increased by a morbid state of mind, which greatly exaggerated his losses. Continually dwelling on his sacrifice of property, he could think of nothing else, lost all taste and inclination for former pursuits, and was displeased at everything. His appetite began to fail, he lost strength, although he increased his ordinary

quantity of wine, &c. He now began to complain of pain in the head, of being what he called very nervous, could not walk alone, slept very badly, started frequently in his sleep, and was often tormented with unpleasant dreams. He repeatedly tried change of air with advantage; but his stomach continued to lose its power; all kinds of food disagreed with it; the stimulants he was in the habit of taking increased his dyspeptic symptoms, for being unmixed with food, and therefore coming into direct contact with the tender and irritated mucous membrane, they only aggravated the mischief. His countenance gave the expression of internal suffering, his complexion became sallow, the white of the eye tinged with bile, he lost flesh, and the pain at the pit of his stomach greatly increased, and invariably continued for some time after eating; he always felt full and distended with flatulence, for which he took large quantities of such stimulants as essence of ginger. He consulted many medical men, and was better so long as he attended to their advice; but being of an impatient temper, and rather sceptical of medical treatment, he soon neglected admonition, fell into a lower depth of dyspepsia, his general health became worse, and he was alarmed at the increase of uneasiness and occasional giddiness in the head. He was at last prevailed upon to submit to a regulated system of diet and medicine for many months. He was ordered to practise cold ablutions the instant he left his bed, beginning by dipping his head into very cold water, and then sponging the whole body freely. His diet was regulated; it was not

thought prudent to give up stimulants altogether, but he was limited to two glasses of diluted sherry with his dinner. A perseverance in this regimen, with due attention to the amendment of the disturbance of his stomach by proper medicines, restored him to comparative health, and entirely dissipated all the alarming symptoms about his head.

Cases of a similar kind are very frequent in most periods of mature life, whether the mind be overwrought by literary, scientific, professional, or commercial pursuits; many men at this age are, under all circumstances, disposed to melancholy. They have lost many of their early friends—old pleasures have begun to pall—the anticipations of youth have mostly proved delusions—the realities of life have shown themselves of a different colour from the *couleur de rose* with which we had in earlier years painted them. The end of life begins to present itself as a reality, and our approach thereto appears to increase with fearful rapidity. We begin to ask ourselves, of what use we have been in our generation?—what have we done?—what have we left undone?—various questions of a like nature present themselves to our minds, and await but too frequently a very unsatisfactory answer. At this age, we ought to have settled in our mind the real value of life, the proper objects of our existence on this globe, the course to be adopted in our future career of mortality, and the foundations of our hope of immortality beyond it.

Gout is a disease of the meridian of life, the first attacks generally occurring about the age of thirty-five

to forty, although in a few instances it happens much earlier; it is frequently hereditary, but may be altogether the result of too much food and too little exercise. It is more common in the male than the female sex; it is not confined to the wealthy, although most frequently occurring as a consequence of the enjoyments purchased by affluence. People who work hard—those who live mostly on vegetable food—those who use no fermented drinks, are seldom sufferers from gout. It is the crisis of a long-continued concentration of morbid mischief in the constitution, usually resulting from indolence, inactivity, too much animal food, and the free use of wine and beer, particularly of the latter.

The first fit of gout makes its appearance after many threatening symptoms of disturbance of the stomach and digestive organs, flatulence, loss of appetite, depression of spirits, and a morbid state of the urine. In the night the patient is awakened by pain in his foot, usually situated about the joint of the great toe, which becomes red and swollen; the pain increases, and the agony suffered is often compared to the dislocation of the joints; the pain is preceded or attended with chilliness or rigors, succeeded by fever and quick pulse. Sometimes both feet are attacked, and cannot be moved without excruciating pain. After some hours' duration the violence of the pain subsides, a little sleep is obtained, to be succeeded by a recurrence of the paroxysm, and the patient rarely escapes with less than two sleepless nights. The pain of gout has been thus quaintly described by a French author: "Place your joint in a vice, and screw the vice

till you can no longer endure it, that may represent rheumatism. Then give the instrument another turn, and you will obtain a notion of the gout." These paroxysms gradually diminish in violence, and go off entirely with an increase of secretion from the skin, the kidneys, and the bowels. This constitutes what is called a regular fit of gout, or a fit of regular gout—the term regular being applied when the disease is confined to the extremities of the foot or hand, without implicating any internal organ.

The duration of attacks varies much, as does also the frequency of their recurrence—in some returning in two or three months, while others enjoy an interval of as many years. If means of prevention are not adopted, the fits occur more and more frequently, and lay the foundation of change of structure in various organs; while the joints frequently lose their strength and flexibility, with all power of motion, in consequence of concretions forming around them. However, after the early attacks of gout, the patient is left in an improved state of health, and with such renewed vigour, that he is apt to forget what ought to have been a lesson and a warning.

A regular fit of gout was formerly considered an effort of nature to throw off what our forefathers termed a peccant humour, and was either left to itself, or even encouraged in its violence. On the other hand, some modern physicians have attacked it by bleeding, purging, cold affusions, and other anti-inflammatory means. Experience points out a very different course. Soothing

applications should be applied locally, and the action of the bowels, kidneys, and skin should be promoted. It is better to treat the disease on general principles, than to have recourse to so-called specifics. If there is any one disease in which quackery has done more mischief than in another, it is gout, specifics having been vaunted in all ages. Hellebore and colchicum are as old as Galen, and most, if not all gout remedies contain one or other of these poisons. Those who consider a fit of gout as a trifling ailment, or are willing to pay the penalty of an attack for sensual indulgence, may have recourse to these so-called specifics; but those who prefer health and long life will studiously avoid them. That the *eau medicinale*, and other preparations, do carry off a fit of gout rapidly, is an unquestionable fact—not by any specific influence over this disease, but probably by transferring action to the stomach and intestines. Other evacuants have done the same thing as well, and a very large dose of calomel will sometimes resolve a gouty paroxysm as well as colchicum. An over-dose of colchicum, or even a moderate dose in some constitutions, produces faintness, cold-sweat, extreme prostration, violent vomiting and purging, an almost imperceptible pulse, and other alarming and dangerous symptoms. None of these specifics prevent the recurrence of gout; on the contrary, by their noxious influence on the system, they render gouty people more open to repeated attacks, and require to be employed in larger doses as the recurrence of the disease becomes more frequent. The most early victims of gout are those who take colchicum largely.

In gouty subjects we often find various anomalous symptoms of derangement in different organs, ascribed to want of power in the constitution to induce that inflammation of the joints of the hands or feet, which constitutes a regular fit of gout. In these cases the stomach is generally affected with various symptoms of indigestion, flatulence, nausea, loss of appetite, pain, and sensation of fulness after eating; with these symptoms there is often great depression of spirits, almost amounting to hypochondriasis, and frequently to confirmed melancholy. In some instances, there are pain and giddiness in the head, while in others the organs of respiration and circulation suffer, and the symptoms of asthma or bronchitis disturb the patient, or he may suffer from palpitation, fainting, or other affections of the heart. A fit of gout sometimes, instead of subsiding gradually, will disappear suddenly, and be followed by alarming symptoms in these various organs. All occurrences of this kind have been termed irregular gout, and are, of course, much more dangerous than a regular fit.

Gout always attacks the weakest parts of the system: when the gouty diathesis exists, and there is a weak organ, that organ will be attacked; but as in healthy subjects there will be none such, gout attacks the extremities of the feet and hands, where the vital powers are, of course, the weakest. In persons of bad health, the extremities are not the weakest parts, but in that organ which is the weak one the gouty principle will establish itself, or vary its attacks from one organ to another, or to the feet or hands: these metastases are rare when the

constitution is sound. These are peculiarly the cases in which any treatment that will rapidly resolve the disease in the extremities is so dangerous. All depressing remedies should be avoided, and the opposite line of treatment, that of stimulants of the most active kind, sometimes becomes indispensable, and life is often preserved by an amount of stimulation which, if no disease prevailed, might of itself be fatal.

As our purpose is to advocate the principle of preventing disease, rather than to show how it may be cured, we must revert to the question, whether a person who has had one fit of gout, can adopt any line of conduct by which he may be free from future visitations? Gout appears, *par excellence*, to be, with perhaps a very few exceptions, a preventable disease, even where an hereditary taint exists: the gouty action is excited by full living;—such persons are taught that it is necessary to keep themselves up by plenty of animal food, good beer and wine; and this, done in excess, as it generally is, assists the development of gout. In very inveterate cases, where the germs of the disease have been transmitted from several generations of bon-vivans, it will appear in very early life; but even in these cases much might have been done to prevent attacks by a well-regulated system of physical education, begun in childhood and pursued with perseverance. I believe gout to be perfectly under control, and that any subject of it, before the fits have been frequent enough to have caused change of structure, can, by constitutional management, establish his health on such sure foundations, that he may

render himself exempt from any serious attack. And there is no doubt whatever that, by a very persevering attention to all the laws of health, we may make ourselves almost, if not entirely, independent of such a companion as gout, whether hereditary or acquired.

Those who are desirous of preventing gout should study all the occasional causes of the attacks, and do everything to avoid them. The simple rules of diet recommended for indigestion should be adopted ; stimulants may be permitted in moderate quantity ; and really active exercise in the open air should be taken regularly day by day. In this, as in all other diseases, there is no general rule ; the cause of gout may even lie in too spare and abstemious a diet ; in some habits, a certain amount of good living is as necessary to keep off disease as is the reverse in others ; therefore, under different circumstances, the diet must be diminished where it has been too full, and increased where it has been too spare. Where habits of indolence and inactivity have become habitual, regular exercise of a proper amount must be gradually arrived at. Where a long train of rich food has been the custom, the change must be equally gradual. All the rules of health recommended in other diseases must be studied, and applied according to the circumstances of each particular case ; and if the patient will take the proper means to induce healthy action in the stomach, the lungs, and the skin, and give employment to the mind, he may escape for the rest of life without any very severe encounter with his enemy.

In those old cases, where gout has attacked some important organ, much may still be done to render life more endurable, in those who are not unwilling to forego the indulgences of the table. Great simplicity of food, plenty of good air, with passive exercise where active is impossible, cheerful society, and a mind at ease—in fact, all the laws of health, studiously carried out, will do much to lessen evils, which in such cases can only be lessened.

LETTER XXII.

HEALTH OF MIND AND BODY AT THE AGE OF FIFTY.

MY DEAR F——,

HAVING passed the meridian of life, we should seriously consider the true way of employing to the best account what remains of it. Our occupations, our tastes, our habits, our desires, our position, have by this time become so fixed, that what they now are, they will probably remain for the rest of life. It is, therefore, wise to make the best of circumstances: we cannot materially alter the course of events, nor our particular position in society, but we may accommodate ourselves to the circumstances in which we are placed, so as to extract all the satisfaction they are capable of giving.

All who have reflected much on human nature, and who have acquired some insight into the human mind, have come to the conclusion that virtue, and the consciousness of moral power, are the highest delights an enlightened intellect can enjoy. The highest virtue is rarely attained; and when a certain degree is reached, after escaping the storms, rocks, and quicksands which

beset our path through life, it is qualified by the remembrance of conduct in our unawakened state that neutralizes much of the satisfaction of our present condition. There are but few who can review the whole of life without some misgivings of early passages. Such considerations should make us tender in our judgments of others, and humble as to our own merits.

The real value of life at the age of fifty, is the opportunity we have left of retrieving former errors, and pursuing with resolution that course which will most conduce to the happiness of the years which remain to us. Happiness is our being's end and aim, and combines, in its full meaning, health, peace of mind, and prosperity. The object, therefore, of a wise man will be, to secure to himself that peace of mind which results from independence in circumstances—that ease and strength of body which constitute health—and that vigour of mind which, with the other two, constitutes happiness. It is in the power of all to secure these blessings. A very moderate income will secure independence, if we limit our wants to our means; and by the time a man reaches the age of fifty, he ought to have acquired the knowledge, that to feel independent is worth all the enjoyments that wealth can purchase. That he can secure health by his own exertions I have endeavoured to show; without health, life is not worth having, and this more especially applies after the age of fifty.

Experience should have taught us where we have been in error, and it behoves us now to put into practice the results of that experience. We have by this time

discovered what are the pursuits which accord with our tastes and capacities,—we have, or ought to have learned what agrees or disagrees with our health,—and we should now be sufficiently acquainted with our own mind to know what gives it the greatest satisfaction,—we ought to be well acquainted with the proper objects of life, and the course a wise man should pursue for the remaining term of his mortal pilgrimage,—how to turn it to the greatest advantage to those who are dear to us,—how to conduct the mental pursuits of our declining life to the production of the greatest happiness, having a full prospect of old age, and of “that bourne from whence no traveller returns.”

We should fearlessly review our state of health, calculate the probability of life, and take measures to ensure, as far as mortal means can, our advance into old age with as healthy a constitution and as happy a mind as possible. If we have adopted such rules of health as have agreed with our constitution, we should steadily continue the system. If we have not had our attention directed to this subject, from the uninterrupted enjoyment of health, we should satisfy our minds as to the soundness of our constitution, and adopt such rules as are likely to preserve it. If about this age, as happens in many instances, some hitherto latent disorder begins to discover itself, medical advice should be had, and means adopted to subdue it, so that we may not be invalids for the rest of our life. Unless disease has made serious inroads, it is not too late to eradicate it, and to place the constitution on a basis of health that

shall endure to old age. Even if any organic disease has established itself, we may, by rigid attention to remedial means, so far check its progress as to render the organ tolerably fit to perform its functions ; and by observing all the laws of health, we may yet advance into old age without that decrepitude of body and irritability of mind which too often accompany advanced life, and render old age a misery to its possessor and an infliction on dependants, instead of being, as Nature intended, serene, contented, and happy.

The beginning of the second half-century of human life is an epoch at which many changes of constitution have become very apparent. The hair is thinner and grayer—the eyes require the aid of spectacles—muscular power has declined,—we are no longer capable of enduring so much exertion, and other symptoms of declining years may have become perceptible. Very active exercise is not so necessary to health as in earlier life, our regard for ease limits our exertions ; and this, with an increase of the pleasures of the table, induces a disposition to obesity, with its common attendant, disturbance of the balance of the circulation. We should at this age carefully attend to any symptoms about the head, such as giddiness, noise in the ears, frequent headaches, specks before the eyes, &c., which indicate mischief that may, after a time, terminate in apoplexy and paralysis, unless the full tide of nourishment is arrested. Congestion or inflammation in other important organs—the lungs, the liver, or the kidneys—may be induced by similar causes. Indolence of mind and

body, and indulgence in the pleasures of appetite, are the foundation of innumerable ills, which reach their acme after the age of sixty, and either carry off their victims about the period styled the grand climacteric, or establish some of the disorders which render old age unenjoyable. The true remedies for this state of things are temperance and exercise ; but there are few who, for the sake of health, can be induced to relinquish the pleasures of eating and drinking, which generally destroy the capability as well as the desire for exercise. We can only depend on secondary means of preventing congestions and disturbances in the vital organs by purgatives and occasional abstinences from the usual heavy feeding. If the warning of increasing corpulence and some of the above-mentioned symptoms is not attended to, and a more moderate style of living adopted, apoplexy, heart-disease, dropsy, &c., may cut short the thread of life, or render the victim a helpless invalid.

Indigestion and its concomitants are equally induced at this period of life, as at an earlier stage, by the excessive excitements and anxieties of the wear and tear of mind attendant on modern civilization ; but on this subject I have spoken sufficiently elsewhere. The urinary organs at this age frequently begin to exhibit symptoms of decay, and should always be attended to, for by proper treatment many might be saved from some of the most distressing and painful diseases, or, when not painful, very troublesome and unpleasant. The first symptom in many of these cases is irritability of the bladder, which does not comfortably retain its

usual quantity, so that we are called upon to empty it more frequently than customary. This condition, neglected, always increases, so that as life advances it frequently becomes most distressing. It is to be remedied by certain abstinences, cold bathing, and tonics; and if there is any obvious cause, such as excess in wine or spirit drinking, the habit should be entirely abandoned. Any sacrifice is worth making to stop a mischief which is, to say the least, a great drawback on our comfort, and it is in the early stage so generally within control, that we may usually arrest this great inconvenience by the adoption of proper means. Some exciting cause may generally be discovered, and must be dealt with accordingly by the early adoption of sound medical advice.

There are so many sufferers in old age from diseases of the bladder or the kidneys, that it is impossible too strongly to dwell on the necessity of stopping the progress of these maladies as soon as possible. No one should allow a thickened or morbid state of the urine to continue without medical advice. In the present state of our knowledge on these subjects, an examination will enable us to discover the kind of disease existing, whether in the kidney or the bladder, and the knowledge of the disease is the first and most important step in the cure. In diseases of the urinary organs, the difficulty of diagnosis has been much diminished by chemistry and the microscope; and if we have to treat a disease in these parts in a sufficiently early stage, we are tolerably sure of relieving it.

The laws of health applicable to this period of life are similar to those we have before discussed. If the skin, the organs of digestion, and locomotion are maintained in good order, the rest of the body may be left to take care of itself. To keep the skin in health, and by the great influence of the skin to act on the whole constitution, there is nothing so beneficial as cold ablution. We should leave our bed between seven and eight o'clock, and immediately sponge the body from head to foot with cold water; and after drying well with a coarse towel, friction with brushes or horse-hair gloves should be continued for five or ten minutes. I believe all persons will be benefited by cold sponging during the summer; a very large number may continue it for nine or ten months, and many could bear it through the coldest season with great advantage. There are several ways of performing this, from the severity of a large and cold shower-bath to the mild application of a wet towel, all suitable to persons of different temperaments and degrees of strength. Having breakfasted between eight and nine, those who have work to do should do it in the next six or eight hours, and those who have no necessary occupation should invent some. Man was made to work, and without it there will be neither health nor happiness.

It is a gross delusion to suppose that the working-classes are to be pitied because compelled to labour: amongst them are the happiest part of the community. Exercise of body and mind is essential to our welfare, and those occupations are the most desirable which give

employment to both. When only one works by necessity, employment must be found for the other. A lawyer, who is working his mind all day and his body but little, should, in his moments of relaxation, find exercise for the body only, and repose the mind. On the contrary, he whose occupation gives exercise to the body, should in turn give it rest, and find employment for the mind. Every one should have a resource for moments of leisure ; a hobby of any kind is very useful, if not ridden too hardly. Change is essential to our well-being ; we cannot for ever be doing the same thing ; if we do, our minds sink into a state of apathy. The eager desire of novelty is the result of a law of our nature ; and possibly the reason why there is no position in this world that can satisfy the mind may be, that the mind was not made to be satisfied with the pursuits of this life, but only to employ them as a stepping-stone to another : nor is it a necessary consequence that we should be discontented with our lot, and always grumbling at fortune. On the contrary, the destiny of every man affords much to be satisfied with ; and such is the diffusion of self-satisfaction, that there are very few who in all things—mind, body, and position—would change with another, however favoured by fortune. In the affair of mind, in the cultivation of intellect, in the advancement of our moral faculties, we should never rest satisfied ; for the soundest head, with the longest life, will still find much to learn. Such is the limited power of the human mind in its present state, that a full and entire knowledge of any one natural science was never

yet attained by the most devoted student; for the deeper he pursues the subject, the more he finds to learn. Is not this another convincing proof of the immortality of the soul? It is highly improbable that an all-wise, beneficent, all-powerful Creator would have given to the human mind aspirations and powers only to disappoint them.

Six or eight hours is not too much to employ daily in business, and those men are the happiest who are constrained so to employ themselves. The purely independent part of mankind, those at least who have not devoted themselves to some useful object, deserve our pity rather than our envy; how many days in the year are wretched to the unemployed, if the weather be unfit for pleasurable employment out of doors—what complaints, what ennui, what misery. To the employed, bad weather is not agreeable, but they are not dependent on it, and time passes away imperceptibly, while the man of no business is counting the minutes, and wearied out with the length of his day. If we could get a statistical account of the number of hours satisfactorily employed by all classes of society, and the number of wretched ones, or those passed unsatisfactorily, would not the balance be greatly in favour of the working man? Is it not almost certain that the real working man, he who works with his hands, is the happiest member of society, and he who most completely fulfils the laws of his Maker? If his work be not so laborious and long-continued as to deprive him of time or inclination for any employment of mind, and he makes use of his leisure

in even moderate cultivation of his intellectual and moral nature, he is the happiest man. Of the two extremes, the totally unemployed and the over-employed, I question whether the former has not the greater number of unsatisfactory hours.* The industrious artisan, who by a moderate day's labour can well provide for his family, is one of the happiest members of society, as well as one of the most useful. They would also be the most independent class if they husbanded their resources, and made provision for the future, by more temperance in those useless and too often pernicious luxuries, tobacco, beer, and spirits.

* See some excellent remarks on this subject in a lately-published lecture of Dr. Forbes, "On Happiness, in its relations to Work and Knowledge."

LETTER XXIII.

PROPER NUMBER OF MEALS.—DIET.—COOKERY.

MY DEAR F——,

I SHALL here make a few remarks on what is to many, and especially to idle people, the most important event of the day, and the most prolific source of medical fees—the dinner. It is a matter of indifference by what name we call our meals, but it is a matter of great importance how many we make in the day. Three is the largest number necessary for health, two, with a moderate refreshment between, are sufficient, and this leads us to consider the best period of the day for taking our principal meal. There can be no doubt that, as a general rule, an early dinner is most consistent with health; in dining after all the business of the day is over, we may be induced to indulge too freely both in eating and drinking, overloading the stomach with too many good things, and in too great variety.* I believe

* “A glance at an Italian warehouse in Piccadilly must compel us to admit that the powers of the human stomach are prodigious. The pickles and the preserves—the chilies and the condiments—the Scandinavian tongues and Westphalian hams—but, above all, the sausages of Germany and Bologna—would poison the vulture, the shark, and the jackal.”—DR. J. JOHNSON.

if our dinner is simple and moderate, it is of no great consequence what time of the day we eat it, provided a proper interval elapses between our respective meals. I know healthy people who dine at all hours, from one to eight. If simplicity and moderation be observed, we may dine at that hour which is most convenient.

It is an important law of health, that the stomach should have an interval of repose between the various meals. In the adult, as a general rule, about six hours should intervene. Man is omnivorous—meat, corn, fruit, and vegetables being all agreeable to his taste ; but some men in their habits of feeding approach *nearer to the carnivorous*, and others to the graminivorous animals. We occasionally meet with a person, who, like the carnivora, exists almost entirely on a single meal, principally of flesh ; others we find who are always taking small quantities of food, of which the least portion is animal. The medium is the general law : three meals in a day ; two of vegetable food, and one of animal, at intervals of about six hours, appears by the common consent of mankind to be the wisest general rule. Many enjoy health on two hearty meat meals, at an interval of eight or ten hours—some taking a biscuit or a slight refreshment between, while others require no intervening assistance. The quantity of food should be regulated by the age, the amount of exercise, and the wear and tear of the body. One who is taking active exercise all day in the open air of the country, who expends a large quantity of animal heat and muscular power, requires more fuel or food than one who creeps about all day in

a city; and the latter requires more than another, who spends the whole day in an office, a shop, or a counting-house. The fresh air of the country appears to carry away from our lungs and skin more of those excretions which should pass off from their surfaces than the loaded air of a city, and we therefore feel more appetite in the one than the other. If, contrary to the dictates of nature, the denizens of a town supply the stomach with as much nutriment as they would require in the freer atmosphere of the country, the consequence will be indigestion and bad health. Nature tells us how to regulate the supply to the demand, and it would be wise to follow her counsels.

We will here say all that is necessary on the subject of meals, as it is obviously of great importance towards the maintenance of our digestive organs in a healthy condition: indeed, almost all the laws of health may be said to depend on those which regulate the prime mover of our animal frame—the source of nutriment. We will start from that point which appears the most generally applicable, three meals in the day:—breakfast about eight or nine; another meal, call it luncheon or dinner, from one to two; and the third, under any name you please, from seven to eight. This is the most rational mode of living, the meals being modified by circumstances—for example, we will suppose a person living in a city, and taking but a very moderate amount of exercise; he should take with his breakfast a little bacon or an egg, make a good meat meal in the middle of the day, with one glass of diluted sherry, or a tumbler of

good beer or water, whichever agrees best, and, in the evening, tea or coffee, and nothing more substantial than bread or toast and butter should be taken. This I believe to be the best mode of living for a valetudinarian, but the following is not bad for those who enjoy health, and whose avocations render the arrangement more convenient. To make a hearty breakfast, (few have good health who do not make a good breakfast,) take a basin of soup or other light refreshment in the middle of the day, and dine in the evening, taking nothing after. The grand objection to this is, that we are apt to eat more than is necessary when no farther occupation or exercise will be required, and this leads to corpulence. It is a capital plan to take gentle exercise, such as a walk of a mile, a few games of billiards, or similar exercise, after this meal. But, in all cases, repletion should be avoided. The stomach should never be fully distended, as this state of the organ is always injurious, whether the disturbing cause be gaseous, watery or solid. Persons beyond the active period of life will find one meat meal (about four ounces of cooked meat) in the day quite sufficient; and, in all instances, after the age of fifty, a diminution of the usual quantity of food is beneficial to health. As we advance in life beyond this age, the total quantity of food may be still farther reduced with advantage to health.

The art of cooking is of great importance to health, the great point being, to reduce animal food to its most soluble condition, while its nutrient qualities are perfectly retained. Whatever superiority we may claim

over our neighbours for steam engines, we must yield the *art de cuisine* to our rivals the French. Common English cookery is too frequently a device for rendering meat hard and indigestible. With the best meat in the world, we have the worst cooks. We have some breeds, both of sheep and oxen, which give us tender meat in spite of our cooking, but the French would make the flesh of an old horse soluble. Simplicity of diet is doubtless a promoter of good digestion, but hard meat never can be wholesome, and the coarser joints of all animals require other management than mere roasting or boiling to make them digestible. The art of cookery should be taught in our girls' schools; an acquaintance with this subject would enable the servants of the middle classes, and the wives of the working classes, not only to promote health by more wholesome food, but greatly to curtail expenses by the introduction of many nutritious, as well as economical dishes. But in England it appears to be supposed that the art of cookery comes by intuition, and that every one who can make a fire, can apply it to the purposes of cooking. In the apparently simple process of roasting, a cook will send a joint up to table juicy and nutritious, while a pretender will make the same meat hard and indigestible, and the butcher is often blamed when the cook is in fault. While our neighbours are too *recherchée* on this subject, we are too careless, and some of our indigestion may be charged to our barbarous cookery.

The great desideratum of all cooking must be to make meat so tender that the teeth easily divide it, and

the juices of the stomach readily dissolve it. The necessary treatment begins as soon as the animal is killed—the butcher or the housekeeper should possess a cool place, open only to the north or east, in which to hang it a certain time : this done, if the meat is hard the cook is to blame. There are some stomachs which digest food better when it has been prepared with certain condiments, and with these, good French cookery agrees best. There are many who suffer the pain of indigestion from almost all animal food—even from tender mutton sometimes : to such I would recommend the trial of a small quantity of curry-powder mixed with well-boiled rice, to be taken with the meat, without any other kind of vegetable, not even potato. This is a dish which no cook can spoil ; but in general an English made-dish contains unsubdued butter or grease, not softened into an emulsion. This appears to be the great art of French cooking ; fat should not be apparent to the sight, smell, or taste, but ought to be converted, *secundum artem*, by proper admixture, into a kind of emulsion, upon which the stomach can act without decomposing or separating the oily particles.

Here I will allude to a few habits, which often render life one long disease—spirit drinking, and the abuse of wine and beer, and perhaps we might add, the inordinate use of tobacco and snuff. Spirit-drinking in any degree is a most pernicious habit, destructive to the functions of the stomach and the brain ; all spirits should be abandoned as articles of diet, and never employed unless medicinally. That stimulants are neces-

sary occasionally, and that spirits have saved many lives, is an unquestionable fact, but for all ordinary purposes, good wine or beer has power enough. In many cases of weak digestion a glass of wine or beer, taken with the food, affords a gentle stimulus to the digestive organs, which enables them more easily to convert food into good nutriment. The increase of strength which we often witness under their use is probably induced, not directly from the assimilation of their own principles, but indirectly, by giving the digestive organs power to assimilate the food with which they are mixed. Wine or beer, therefore, in moderate quantity, when required, may be taken with a meal, but in the intervals of meals should never be indulged in, as there is nothing more injurious to the powers of the stomach. Where digestion is good, there is no reason for their constant use; health and strength would in the great majority of cases be increased by the omission of the almost universal English habit of beer-drinking. I believe many of the diseases to which the working-classes fall victims are consequences of the large quantity of porter they drink, under the delusion that it is necessary to enable them to do their work. The contrary is the fact: many men have found they could do a better day's work without beer than with it, and thousands would find themselves in a healthier condition, both in purse and in person, if they drank only water. Every day's experience enables me to speak more positively on the little real necessity that exists for the general use of stimulants. No children shake off illness better

than those who drink nothing but water; you and I could produce several examples, and I could enumerate the cases of many adults who had been invalids all their life, until they omitted the use of all stimulants, since which their health has been uniformly good, and their capability of work, mental and corporeal, greater than before.

LETTER XXIV.

PROSPECTS OF OLD AGE.

MY DEAR F——,

OUR inquiries have now reached the last stage of human existence; and we have to consider the laws of health applicable to advanced life, and to make a few comments on the disorders of old age. Perhaps very few die absolutely of old age; in the majority, some weak organ gives way in advanced life, and cuts it short before Shakespeare's last scene is realized :

“That ends this strange, eventful history,
Of second childishness, and mere oblivion ;
Sans teeth, sans eyes, sans taste, sans everything.”

Very old age can only be desirable under favourable circumstances, and one grand desideratum must be an age of health and vigour, both of mind and body. To be an incapable invalid, a burthen to oneself and one's friends, to be perpetually dependent on others for the commonest assistance, is a condition worse than death. But, on the other hand, there are circumstances in which it is very desirable to live to be old. What can be more

pleasing than such an example of age, where good health is accompanied with the unimpaired faculties of a cultivated mind—in one who has passed through life under the guiding influence of the natural laws, and a knowledge of his relative duties both to God and man. Such a person in a long and well-spent life will have accumulated a mass of experience, which, combined with a sound understanding, makes him the most pleasing and instructive of companions. Life, in such cases, continues to be desirable as long as the faculties are retained; and where the mind has been well regulated and well informed, it will be unimpaired to an extreme age.

We are all acquainted with a few instances where the intellectual faculties and the moral powers have continued to improve as long as life has lasted—long after the body has begun to decay. While every part of the body, every system, muscular, respiratory, digestive, &c., has suffered from gradual decay, the mind, so far from being equally-impaired, has actually improved. After the age of fifty, the powers of the body have visibly declined, and towards sixty there are very few who are capable of anything like the exertions of former years. But many of the noblest efforts of the human mind have been produced after fifty. Bacon published his “*Novum Organon*” at fifty-nine; Newton was seventy-three when he solved the problem of the trajectories in one evening; Milton was fifty-nine when “*Paradise Lost*” was published; Locke published his great work at fifty-eight; Johnson wrote “*Rasselas*” at fifty, his “*Lives of the Poets*” at

sixty-six, and his "Conversations," preserved by Boswell, show how active and unimpaired his mind was at seventy; Wordsworth's mind does not appear to have been materially impaired at eighty. At the very moment I am now writing (March, 1851), the advice of the Duke of Wellington, past four-score, has been called for by her Majesty, in great perplexity with the difficulty of forming an administration. A better example could not be adduced, because his Grace is precisely an instance of the retention of mental power long after bodily decay, by the active employment of his mind at every period of a long and well-spent life. There are few who have braved the trials of a long life more worthily, and he may be cited as a glorious picture of old age.

These may be called exceptions, but it appears to me that a few instances of mind surviving bodily activity, are sufficient to prove the law, inasmuch as there are so few examples of that active employment of it, which is essential to its continued improvement. Where the mind is actively employed, it will continue to add to its stores, and to employ its faculties vigorously after the age of sixty. In cases of paralysis, we see one side of the body irremediably disabled, while the mind, which had also been lost for a time, recovers and again acts vigorously, the power of locomotion being rarely regained. Where the mind has been actively and judiciously employed throughout life, and the due exercise of the faculties continued, in sound constitutions the age of seventy will be past before any decline of mental power becomes perceptible. In my own limited experience, I

have known several instances, and they prove the comparative independence of the mental and moral powers on our mere animal organization. When we remember how few continue through life to employ their mental faculties with proper activity,—indeed, the proportion of men who ever use any but the lowest faculties is very small—we can hardly be surprised that cases of mental longevity are not more numerous.

I have always been inclined to doubt whether, in a person who had enjoyed good health, in whom there was no bodily disease, but simply decay, and where the mental powers had been exercised with judgment through life—whether in such a case we should perceive any decay of mind at all. Was not Wordsworth a case in point? and is not the Duke of Wellington a living instance? In the majority of those in whom we perceive any remarkable decay in the faculties, there has not been that continued employment of them so necessary to their healthy action. Many even intelligent persons, late in life, when corporeal vigour has decayed, are recommended by others, or persuaded by themselves, to adopt a more generous diet; circumstances also permit and lead them to maintain a more bountiful table than in earlier life, and thus encourage the animal propensities to the injury of the intellectual and moral faculties. The reverse of this ought to be the rule; for as we advance in life, our diet should rather be moderated than increased; we do not require so much nutriment; and most old people might adopt the advice of Cornaro, and very much diminish the amount and rich-

ness of their food. This is the general rule, subject of course to exceptions.

A well-spent life ought to be succeeded by a cheerful old age, and if we have taken a right view of the objects of human pursuit, such will be the case. Nothing affords better evidence of a well-spent life than the respect and deference of the young, which can only be truly produced by that liberality and wisdom resulting from an intimate knowledge of human nature in all its stages of existence. There is nothing more delightful than the intercourse of the old with the young, where both parties possess proper knowledge of the nature and duties of life, and their own respective positions. If old people would always bear in mind that they once possessed feelings and inclinations which had not then the experience of a long life to direct and govern them, they would not be so harsh in their opinions of the new generation rising around them. They ought not to make themselves unhappy because their children and grandchildren are performing the same parts, although in an altered manner, which they themselves performed in youth. We do occasionally see a very aged person, who is the delight of descendants and friends for two or three generations, whose intercourse, so far from being shunned, is courted; even young children, by the mere dictates of nature, doing homage to a well-spent life. Such a green and happy old age as this requires a combination of circumstances and qualifications which but rarely concur. The health must be good, so that neither disease nor decrepitude shall sour the temper,

and induce that petulance which suffering will occasionally draw forth even from the most religious. But the grand possession for a happy old age is a well-stored, well-regulated mind, possessed of knowledge of self and of mankind, with feelings of justice, charity, and benevolence. As "true as is the dial to the sun," so is such an individual sure to be surrounded by troops of friends, loved in life, and long remembered in death. Such a mind, as long as it retains its self-possession, will exhibit suavity of temper even when surrounded with affliction and disease.

The test of true religion is the patient endurance of inevitable evil, for evil is the fire to purify the metal, by destroying impurities; but perhaps the reason why people advanced in life do not bear their afflictions patiently is, that they are not really inevitable. Nine out of ten of the evils of life are the result of ignorance. It is ignorance which prevents us from seeing what ought to be the real objects and proper pursuits of human life—it is ignorance which engenders most diseases, and prevents us from adopting that course of life which would result in a green and happy age; it is ignorance of true happiness which leads us away from the cultivation of that equanimity and self-possession, which would enable us to subdue our animal propensities, selfish appetites, and violent passions. It is ignorance of our true dignity which blinds us to the fact, that all happiness must be from within ourselves, and that the splendour of rank, the grandeur of wealth, and even the possession of unlimited knowledge, will

not avail that internal peace which passeth all understanding.

If with health of body there is combined a heart which feels the influence of religion, and a mind earnest in its conviction, capable of reflecting on the approach of death with equanimity, we have a picture of age that all would wish to realize. Such a mind never ceases to hope, but carries its views beyond the grave. It continues to hope for the virtue, happiness, and prosperity of its descendants and friends, and if it feels regret at its approaching departure from those it still loves on this earth, it has the pleasure of contemplating its reunion with some who have preceded it on its journey, and who may be joyfully waiting to hail its arrival.

“Cease every joy to glimmer on my mind,
But leave, oh ! leave, the light of Hope behind !
Eternal Hope ! when yonder spheres sublime
Pealed their first notes to sound the march of Time,
Thy joyous youth began, but not to fade.
When all the sister planets have decayed ;
When rapt in fire the realms of ether glow,
And Heaven’s last thunder shakes the world below ;
Thou, undismay’d, shall o’er the ruin smile,
And light thy torch at Nature’s funeral pile.”

To the full enjoyment of advanced life, there are many essential concomitants. “*Otium cum dignitate*,” a man should be perfectly independent in his circumstances ; he should have children tied to him by the bonds of real affection, who in their maturity shall have added the devotion of esteem and friendship to the earlier bonds of filial love. He should have those

qualities of mind which have all his life brought him friends, and still continue to draw to him others from new generations. His mind should be stored with the wisdom of age, derived from study, observation, and the experience of an active life. One very great desideratum in age is to continue to take an interest in passing events, in what Dr. Johnson has called "The Game of Life," by remaining a participator in the game as long as it lasts. Although we may long have ceased to take an active part in the amusements going on around us, we should still enjoy them as reminiscences of the past. Nothing is more to be deprecated in advancing life than that feeling of being used up, which is so commonly indulged in. Most old people find nothing so good as in their youth,—there is less beauty, less real enjoyment, less true friendship, and all the pursuits of the age are degenerate; but let us bear in mind that this has always been the talk of grandfathers since the time of Adam.

LETTER XXV.

LAWS OF HEALTH TO BE OBSERVED BY THE AGED.

MY DEAR F——,

AFTER the age of sixty, we may consider that we have entered the last act, although not the last scene of life, and we should remember that the act may be a long one. We should pause on the threshold, review our position, examine our condition in mind and body, and settle the details of our future journey. The question will be how to retain health to that last scene of all, when we must embark for

“The undiscover'd country, from whose bourne
No traveller returns.”

Of course all the general laws of health apply to this as to former periods, but there are some particular rules necessary to be observed in advancing life. We no longer require so much active exercise: as much air as possible, but exercise without fatigue should be the rule. An elderly person should never be tired; “rest and alternate labour” should be so judiciously mingled, that

we may have exercise enough, without exhausting strength. Horse exercise is best, and the horse and his rider should be suitable companions,—a safe, quiet, good-natured, easy-going steed, well acquainted with his master, and ready to enter into all his views. We thus get good air with moderate exercise, and to much more advantage than the monotony of what is delusively called an airing in a carriage. Those who cannot afford to ride must be contented to walk, and it is wise to take several short walks with alternate rest, as we should never forget the rule to avoid fatigue.

We require less sleep in advancing life: many old people remain too long in bed, from sheer want of employment; they don't know how to pass time away, although grumbling at the same moment of the little that is left them. The Spanish custom of a siesta is good: when the other rules of health are observed, and the tendency to fatten is kept in check, it is beneficial to divide the day by an hour's repose, which is better than passing too much time in a hot bed. Cold sponging, or a wet towel to the whole surface on first rising, with good friction for some minutes with horse-hair gloves, answers two important purposes—it keeps the skin in good condition, which is a primary law of health, and it affords just a proper degree of early exercise. The cold to which the body is thus subjected inures it to those vicissitudes of temperature to which every English day is liable; and those who adopt the custom suffer little from colds or rheumatism.

The number of meals may be three. The quantity of

food required gradually diminishes as life advances. At sixty-five we should eat much less than at fifty; and at fifty we require less than during the preceding more active periods. In our cold climate, we require animal food—a small quantity at breakfast, and more at dinner; at the last meal none. A little bacon for breakfast, and one mutton chop, or an equivalent amount of other meat or fish, with one glass of sherry and water for dinner, and a slight refreshment in the evening, will be sufficient to maintain health after the age of sixty. If the habit of a regular daily relief to the bowels has not been acquired, we should strive to obtain it; if this cannot be accomplished, an enema of warm water daily is the best substitute.

Having given our attention to air, exercise, and refreshment of the body, we must not neglect the mind; every one ought to have some favourite pursuit; he should endeavour to acquire an active interest in some one science or branch of literature. It need not so entirely absorb his attention as to prevent his taking a proper interest in other subjects; but after having devoted considerable time and attention to some particular branch of study, he has a resource which will continue to exercise his mental faculties to the last. He will eagerly seek any new book on his favourite pursuit, and he will always find among his younger friends, some who will take pleasure in conversing with one who has made himself thoroughly master of his subject. A hobby, if not over-ridden, is also desirable,—pictures, objects of art, collections of natural history, &c., if such

tastes can be consistently indulged in ; but these only suit the wealthy. Every one can take up a subject of study ; there are enough to suit all tastes, and occupation enough in any one for a long life. A well-trained mind can never be satiated,—human inquiries have been hitherto progressive. Something has been left in every science for new observers, and we see no reason for supposing that inquiry must cease from exhaustion of any subject. There is food for the mind of man as long as he will employ it ; every additional fact added to science opens new views and new fields for inquiry. No fear need be entertained that we shall exhaust our work, however closely we may adhere to it ; and if we can advance into age with full knowledge of one, and continue to take some interest in other branches of science or literature, we shall be in a fair way to enjoy a green and happy old age.

There are very few who die absolutely of old age—the general case is, that some prevailing epidemic which seizes all ages among its subjects, makes victims of the old and the feeble ; this is peculiarly the case with influenza. The number of old people who are carried off by epidemic catarrh, or influenza, is very remarkable ; it is not commonly to be considered a fatal disease, for, although it is very severe for a few days, it usually passes off without permanent injury to the health, although, for a time, it leaves behind very great debility. The large number of deaths observed on these occasions are among the old, the feeble, and those who have had previous pulmonary attacks.

Neglect of the laws of health becomes more important as life advances: all our organs should now be exempted from much exertion, and their action never prolonged to the extent of great fatigue. If the brain is threatened with disease from application to business or study, we must abandon, or at least diminish, the exciting causes, and exert other organs—take more exercise, and adopt agreeable relaxations. If the lungs or the heart show signs of derangement, we must relieve them from all excitement. In like manner, we must give less work to our digestive organs, for the nearer we approach the end of life, the more necessary it becomes to husband our remaining strength, and give to every organ all the repose possible. It is hardly to be expected that all our organs should have escaped through a long life without occasional derangement; some relics of former disorders will make their appearance in old age. The mere wear and tear of the organs in a long life will more or less impair their functions. We can hardly expect, after disease in advanced life, to be able to restore parts perfectly to their normal conditions.

In our remedial treatment of disease in advanced life, we must adapt our medicines to the circumstances of life,—the active remedies of earlier days are no longer applicable. Towards the end of its career, the human frame is less easily excited, reaction is less active, and the restorative power is very much impaired: we must, therefore, in treating the disorders of advanced life, pay due regard, in the selection of our remedies, to the constantly-diminishing vitality and power of reparation.

Although there is no foundation whatever for the division of life into the multiples of seven or nine, and the supposition that, at certain periods of these multiples, the human constitution always undergoes important changes, for better or worse, yet it may be worth while to examine some of the statements made by those who advocate these notions. The Greeks described five of these periods of life, and called them climacterics, beginning at the seventh year, which is the first climacteric; the second is twenty-one, or three times seven; the third is forty-nine, or seven times seven; the fourth, seven times nine, or sixty-three; and the fifth, nine times nine, or eighty-one. The two last were termed grand climacterics.

There may be some truth in the observation, that about these periods the human constitution may be subject to the influence of peculiar changes; but if it be so, the precise time varies in different cases by some years, and the multiples of seven or nine have nothing to do with the matter. There are as many deaths at sixty, sixty-two, or sixty-four, as at sixty-three,—still, it may be possible that, about this period of life, we may be liable to some change, which, if it does not terminate in death, may be the means of establishing a state of health which will carry us on to extreme old age. Sir H. Hallford has published his experience on the subject of the “Climacteric Disease,” and is evidently of opinion that there is such a disease, unconnected with any organic change of structure.

The change which has been observed about the period

of the fourth climacteric, sixty-three, or a few years earlier or later, is of two distinct and very opposite kinds. The system, after the age of sixty, has been observed to undergo a remarkable degree of renovation. Deafness, which had continued for twenty years, has entirely passed away, and people have heard as well as at any period of life. The powers of the eye have been restored, and spectacles, which may have been required for years, have been disused. About this age, there have been instances of a renewal of the teeth, gaps have been filled up, and entire sets of teeth cut. The hair has begun to grow over bald places, and has recovered its pristine colour.

Longevity does not altogether depend on original vigour of constitution, nor on that which may have been acquired at maturity from a well-pursued course of physical education ; accidents, circumstances, mode of living, moral causes, greatly modify the chances of long life.

About the age of sixty the skin loses its fulness and rotundity, from a shrinking of the muscles and a diminution of the quantity of the fluids, the harder parts, as bone and cartilage, becoming more condensed. The muscles are less disposed to vigorous action, the joints grow stiff—the senses more obtuse—the skin dry, wrinkled, and loose—the veins are enlarged, the current of blood slower—bone is frequently deposited in the coats of the arteries, giving them a liability to rupture—all our structures deteriorate, and all our organs perform their functions with diminished vigour. About this age it happens that a sudden change will take place, from rotundity of form and face to spareness of person and

sharpness of feature. The daily supply is unequal to the daily waste, the body emaciates, the whole material fabric gradually crumbling down.

Sir H. Halford describes the climacteric disease as an actual occurrence, taking place in different instances at ages varying from fifty to seventy-five years. It is not a mere declension of strength and decay of the natural powers: patients sometimes rally from the languid and feeble condition into which this change had thrown them, recover their health and live for many years. This disease is characterized by a loss of flesh in advanced life, without any obvious cause of exhaustion, accompanied by a quick pulse, and great alteration of expression of the face. Sometimes this condition comes on so gradually that we cannot trace its beginning. The patient feels himself less capable of exertion, sooner fatigued, his nights are less comfortable, and sleep less refreshing; the face is attenuated or bloated, the tongue white. Occasionally there will be headache or pain in the side, and sometimes swelling of the legs, but no deficiency of urine, or other evidence of organic disease. Anomalous pains, something like rheumatism, are described. In later stages of the disease the stomach loses all power, the frame becomes more and more emaciated; there is considerable anasarca of the lower limbs; insurmountable restlessness by day, and sleeplessness at night; the mind becomes torpid, and utterly indifferent to what formerly interested it; the patient sinks into his grave, and may be said rather to cease to live, than to die of any real disease.

When the powers of the constitution are vigorous enough to shake off the morbid influence, the patient gradually loses the symptoms, recovers his appetite and sleep, and partially his flesh and muscular vigour; but the energies of the frame are seldom what they were before, nor does the countenance recover its former expression. The disease is seldom seen in this simple form, being generally associated with some weak organ, and although at its commencement unconnected with organic disease, soon becomes so. The greater attention to post-mortem examinations of late years has detected lesions in cases, which would formerly have been set down as simple climacteric decline, and we may safely assert that a general breaking up of the system as early as the age of sixty, without any organic disease, is a rare occurrence.

Where the disposition to climacteric decay exists, a very slight occurrence will appear to produce the symptoms. A common cold, a fit of intemperance, an occasion of great anxiety, a fall, not of any apparent consequence at the time, has by the concussion jarred the frame into this disordered action. Fasting too long has been a cause, the stomach, losing its accustomed and regular supply, has continued to decline food, until the whole system has become languid and weak. A marriage contracted late in life has been the occasion of the change; mental emotion and great sorrow have produced the malady in its least remediable forms.

The effects of grief are much more serious in our advanced than in our early life. In our more active days,

while in pursuit of fame and fortune, the mind must be very sensitive, or the disaster very severe, that will paralyze us: at this period, new schemes and new hopes will repair any mischief, but sorrow late in life has fewer resources, and more readily sinks into disease. Some unexpected calamity may have overwhelmed a large property, when a man has no time left to repair losses or recover his station, and he sinks and pines in gloomy despondency. Death may have removed the companion of his joys and sorrows, annihilating at once all the habits engendered by kindred feelings in the changes and chances of a long period of life; and he may be left to pass the remainder of his days deprived of that cordiality and sympathy which was ever ready to share his griefs and apply an antidote to his depressions.

Under these dreary conditions of mind, a patient may ask his physician —

“Canst thou not minister to a mind diseased,
Pluck from the memory a rooted sorrow,
Raze out the written troubles of the brain,
And with some sweet oblivious antidote
Cleanse the foul bosom of that perilous stuff
Which weighs upon the heart?”

Emphatically, here the patient must minister to himself. A steady adherence to all the laws of health, both of mind and body, is of more importance than any combination of drugs; but the best relief of all is a cheering prospect of futurity, resulting from contemplation of a well-spent life, associated with the faith and fervour of true Christianity.

LETTER XXVI.

THE DISORDERS OF OLD AGE.

MY DEAR F——,

APOPLEXY is a disease, generally speaking, of advanced life ; in thirty cases, seventeen were above the age of sixty. It occurs in two forms: 1st, in persons of a full habit ; 2nd, in those of a more phlegmatic or spare habit ; the former technically called sthenic, and the latter asthenic. In the first, or sthenic form, the patient is suddenly struck down, and lies in an apparent sleep, but really insensible state, with oppressed breathing, flushed face, eyes suffused with blood, and pupils generally dilated. The fit often occurs without any premonitory symptoms, but more commonly there have been pains in the head, occasional giddiness, and more than usual drowsiness. Respiration, as the fit continues, becomes stertorous, the patient breathing through accumulated mucus and a mouth full of saliva. The pulse is full and hard, but not frequent.

In the asthenic form of apoplexy, there is the same loss of sense and voluntary motion, and the patient lies

in the same heavy state, with oppressed breathing ; but the face is not flushed, nor the eyes red—the pulse is not full and hard, but weak and infrequent. The attack is not so sudden as in the other form, and there are always premonitory symptoms,—a heavy, dull expression, and lymphatic fulness of the face,—frequent headache, unusual drowsiness, and often vertigo,—some loss of memory, or of other mental faculties. The direct cause, in both forms of disease, is often the same—the rupture of a vessel in the brain ; but in the first case, this arises from the force of the circulation and fulness of blood, and in the latter from weakness of the bloodvessels themselves. In very favourable cases the symptoms gradually subside, and the patient recovers altogether, but more frequently some degree of paralysis remains ; and in all cases there is great danger of another attack.

Whatever induces plethora in the brain, whether by a determination of blood to the head, or by an obstruction to its return from the brain, will be a cause of apoplexy. The sthenic form of the disease is brought on by a course of full living, both eating and drinking, and either, in excess, will produce that condition which results in apoplexy. Dr. Cheyne says, “The daily use of wine or spirits will lead a man of a certain age and constitution to apoplexy, as certainly as habitual intoxication.” There is no doubt on this point ; and probably the unceasing administration of regular daily doses of stimulants is more injurious than a fit of intemperance, if it is only occasional. The Roman-Catholic system of fast-

days is very beneficial, it breaks the chain of that stream of superfluous aliment which is poured into the blood by the daily process of rich dinners and good wines. Every one would do well, and more especially those who are subjects for apoplexy, if they would abstain from flesh and wine for two days in the week; but perhaps Monday and Thursday would be a better division of the week than Wednesday and Friday.

It was formerly the general opinion that apoplexy was always caused by effusion of blood in some part of the brain, but many observers, and numerous opportunities of post-mortem examinations, have shown that this is not always so. However, in the majority of cases there is positive effusion of blood; of forty-one cases examined by M. Rouchoux, in thirty-one blood was found effused in some part of the brain.

The danger of apoplexy may be measured by the rapidity with which some of the symptoms subside, or the contrary. The asthenic is more serious than the sthenic form, being less amenable to our remedies. A contracted pupil is a more alarming symptom than a dilated one, and the presence of spasm greatly enhances the danger, as when the teeth are very firmly clenched, and the power of swallowing prevented by rigid spasm. Where the breathing is not very stertorous, the pupil dilated, the power of deglutition remaining, and the bowels can be acted on, there is some probability of recovery.

In treating a case of apoplexy, the previous history of

the patient is perhaps of as much importance as the present symptoms. There have been some dissentients from the practice of bleeding in this disease ; but if there is one which more imperatively calls for instant and copious venæsection, it is the sthenic form of apoplexy. Nature herself, in many cases, points out the remedy, by spontaneous hæmorrhage from the nose, the lungs, and the hæmorrhoidal vessels. All observation and practice are in favour of free, general, and local bleeding, and nothing but theory and unfounded fears against it. Next in importance to bleeding are copious evacuations from the bowels.

The asthenic form of apoplexy does not depend on any plethoric condition of the system, but results from a morbid change in the coats of the bloodvessels generally, especially affecting those of the brain, and materially interfering with its healthy nutrition. A vessel ultimately gives way, leading, of course, to effusion of blood, and producing the symptoms which collectively constitute apoplexy, being, in fact, the same as in the sthenic form of the disease, although arising from causes essentially different. The constitution and temperament in this form of apoplexy are often the very reverse of the other ; the face is pale, the eyes are not injected, the surface of the body is cool. The treatment of this form must of course be very different from that of the preceding variety,—bleeding can only be worse than useless. If the patient survives the attack, great attention must be paid to the general health ; he must be placed on a

nutritious diet, and all depressing remedies must be studiously avoided ; perfect quiet should be enjoined, and the strength judiciously improved.

When a person has recovered from a fit of apoplexy, of whatever form, he must make up his mind to live the life of an invalid for the rest of his days. He should live sparingly, and take active and regular exercise—if disposed to make blood rapidly, he should altogether abstain from animal food ; this is much better than frequent recourse to bleeding or cupping. Moderate employment of the mind may be recommended, but severe study, or long-continued mental application, must be avoided. Peace and tranquillity of mind are more easily recommended than readily carried out, and possibly those who have most command over their emotions are not the most usual subjects of apoplexy.

A patient who has had one attack of apoplexy should ever after be carefully watched, and any symptoms of vertigo, pain in the head, or drowsiness, be met at once by moderate venæsection, purging, and more strict attention to diet. Unfortunately, weakness of mind, which follows these attacks, deprives a man of his usual self-control and self-possession ; but when a steady and well-regulated system of life is fully carried out, bleeding may be entirely superseded. The temporary benefit derived from bleeding may render a patient too little attentive to diet and regimen, as in the case of Sir Walter Scott, during his voyage to the Mediterranean and subsequent journey ; the knowledge that his valet was always at hand to bleed him, perhaps rendered him

more incautious in his living than he would otherwise have been.

Bronchitis is one of the most frequent disorders of old age, few persons in this climate reaching an advanced period of life without having suffered from repeated attacks of this disease. In its mildest form it is nothing more than an ordinary cold, commencing in the mucous membranes of the nose or throat, and extending into the chest. Hoarseness, dry cough, and slight fever, are succeeded by expectoration of thin mucus, and some oppression of the breathing, until the symptoms abate by a more copious and thicker expectoration. When the disease is confined to the larger air-tubes, it often passes away in a few days without inconvenience, but when it has extended to the smaller bronchi, it is a more severe disease,—in very bad cases interfering with the aëration of the blood, and causing death by suffocation. In bad attacks of bronchitis, the fever and general symptoms are severe, the pulse hard and frequent—there is pain, not of a very severe kind, but rather of soreness, as if the surface under the breast-bone was raw—cough, wheezing, and great oppression of breath—frothy and viscid expectoration, difficult to eject.

Chronic bronchitis is peculiarly a disease of advanced life; few are entirely free from some degree of it, which, becoming dormant during the summer, reappears with the cold of winter, and continues through the spring, often without much derangement of the health; repeated attacks leave the membranes lining the air-tubes and their glands in a condition which causes a very

increased secretion of mucus. The long-continued influence of our very changeable winters and cold springs, and the frequent recurrence of influenza, allow few old persons to escape these bronchial affections. Many suffer most severe attacks winter after winter, and apparently without shortening the duration of life, although the expectoration is immense, amounting to a pint or more daily, during the greater part of many winters and springs. I have known several old people whose lives, under these circumstances, have been extended to seventy-five and eighty years.

It is common, after attacks of influenza or bronchitis, to find that the mucous membranes never again return to their pristine condition of health, but that they ever after continue to pour out an unnatural quantity of mucus, which, by slight exertion, is expelled during the day, but accumulating during the night so much as to require an effort, and often a cough, to remove it in the morning. This state is quite consistent with the enjoyment of health in other respects, and it is only really inconvenient when a cold has supervened, or the stomach is affected by an attack of indigestion. In many who suffer from this morbid secretion of mucus, an indigestible article of food will at any time engender a wheezing and difficulty of expectoration, which goes off as the cause is removed. This state of the air-vessels is often aggravated by want of judgment, and a continuance of those articles of food and drink which experience has told, or ought to have told, the sufferer to avoid; for no cases require more rigid attention to

simplicity of diet. Attacks may be entirely kept off by strict attention to diet, for they are mostly associated with an overcharged or disordered stomach; and it is no uncommon thing to see wheezing and oppressed breathing suddenly cut short by any cause that will act as an emetic. All persons subject to bronchitis or asthma should be careful never to fill the stomach with a large quantity of any kind of food, more especially to avoid all articles which generate flatulence. Rigid attention to the general laws of health, and those especially applicable to advanced life, will prevent much of the distress suffered by this class of patients. There are no cases which are so benefited by change of air, and residence in an appropriate locality, as those of chronic bronchitis.

Asthma occurs in paroxysms, which commonly commence in the night. The patient wakes suddenly, feeling great constriction at his chest, wheezing, panting, and labouring for breath in so painful a manner, as to excite great alarm in those who only witness an attack for the first time. The countenance is sometimes deadly pale, but more generally bloated and livid, with an expression of great anxiety, the eyes appearing ready to start from their sockets. These symptoms continue for many hours, until free expectoration takes place, and then there is great relief in the respiration. Asthma is hereditary, and occurs sometimes in early life, but most generally it is a disease of declining years and old age. For some days before an attack the patient complains of languor, headache, nausea, or other symptoms,

which should warn him of its approach, and lead him to adopt measures for the prevention or the mitigation of the paroxysm, which he can always do. But, generally speaking, the subjects of gout, asthma, and other complaints of a similar nature, like the inhabitants of a volcanic district, are heedless of warnings, and require the full effect of an eruption to excite alarm. They go on eating and drinking as usual, in spite of premonitory symptoms, and are astounded in the dead of night to find themselves waked up with a distressing tightness in the chest, and great anxiety; labouring for breath, and obliged to sit erect, they beg for open windows and fresh air. The abdomen is generally distended with flatus; there is nausea, and often, on cross-examination, there will be an admission that some delicacy has been indulged in, which is oppressing the stomach with indigestion.

The picture presented by a person in the full paroxysm of asthma is indeed very distressing, you find him propped up in bed, breathing most laboriously, and coughing sometimes with great violence—the heart beating tumultuously, the pulse frequent, weak, and irregular; the eyes staring and projecting, the lips livid, and the face pale, bloated, or irregularly patched with red or purple. These alarming symptoms sometimes subside in two or three hours, the efforts of coughing being relieved by mucous expectoration: but more frequently they continue through the following day; and for several nights in succession fresh attacks, but less alarming, occur.

Asthma does not necessarily shorten life: with great care, and attention to diet and regimen, the attacks may be mitigated, and those more fatal diseases prevented which are usually induced by repeated recurrence of the fits. There is generally an enlargement of the bronchial glands, causing an undue secretion of mucus; and so long as this continues in a moderate degree, and it is expelled without difficulty, an asthmatic person may pass life pleasantly enough. But exposure to cold, indigestion, anxiety of mind, depression, or any cause that influences the nervous system, may bring on a paroxysm, by inducing that spasmodic action of the bronchial tubes which is the immediate cause of the feeling of suffocation, and the other alarming symptoms of the fit.

Where asthma runs its course without interruption, where the patient either will not or cannot adopt the advice given him, the repeated disturbance of the organs of respiration and circulation may induce various fatal diseases—phthisis, aneurism, heart-disease, hydrothorax, ascites, &c. Those subjects of asthma who are free livers are often affected also with disease of the kidneys. In the great proportion of cases, the disease continues many years, the difficulty of respiration gradually increasing in the intervals of the violent paroxysms, by the increased secretion of mucus; the bronchia and air-cells are, especially in the morning, overloaded, the dyspnœa and cough consequently very troublesome, until relieved by free expectoration.

The immediate causes of a fit of asthma are,—indigestion, produced by some food that disagrees with the

stomach—sudden changes of wind and weather—emotions of the mind—change of residence—breathing noxious gases—(even peculiar odours have been known to excite a fit)—recession of gout—sudden suppression of cutaneous diseases, or of habitual discharges.

A foggy and moist atmosphere is preferred by some asthmatics, and a dry one by others. This is, perhaps, explained by the fact, that in some the air-cells are loaded with phlegm, while in others the tubes are dry, and to the latter a moist condition of the atmosphere gives some relief. When the subject of asthma is of a plethoric habit, it will be necessary to live moderately and temperately, and check any tendency to redundancy by purgatives and abstinence. On the contrary, in persons of a delicate constitution, a more nutritious diet and a larger quantity of animal food will be required, with a moderate allowance of wine, which, as a general rule, agrees better than malt liquors. Where circumstances permit the choice of residence, one should be chosen possessing the advantages which experience has told the invalid best agree with him. All the habits of life should be governed by order and regularity, the meals taken at the same hours, and consist of the simplest materials; exercise in the open air should be taken two or three times daily in proper weather, but never carried to fatigue. Bathing and friction to the skin will be very serviceable, by keeping up the regular secretions of this large surface, and removing some cause of irritation from the other exhalents within the chest.

LETTER XXVII.

GENERAL SUMMARY OF THE LAWS OF HEALTH.

MY DEAR F——,

HAVING passed in review the state of health, and a few of the principal disorders to which we are liable at all ages, we will conclude by some general remarks, and make a summary of the laws of health, with reference to mind and body. You have long known my opinions on disease, and will not be surprised to find that I maintain the principle, that diseases are not direct visitations, but almost always the result of inattention to Nature's teaching; and, as far as they are punishments for our own indiscretions or vices, should act as warnings. The majority of diseases are produced by our own imprudence or ignorance: observation of the laws of health would enable us to prevent some altogether, to modify others, and to alleviate the effects of all.

The principal laws of health, the regulation of which are under our own control and power, relate to the organs of digestion and respiration, the skin and the brain. 1. Temperance and sobriety in eating and drink-

ing, taking only those things which we know to agree with us, and in moderate quantity. 2. To breathe as pure an atmosphere as possible, by living in well-ventilated houses and apartments, by exercise in the open air for several hours daily, in order that the whole of the air-cells may be emptied, and a fresh wholesome change of the particles of air may reach every part of our lungs. 3. To maintain a free state of all the pores of the skin by ablution and friction, so that there shall be no obstruction to transpiration; once at least in every twenty-four hours we should increase the ordinary transpiration to perspiration, by active exercise. 4. To promote the healthy action of the brain and nerves by active mental employment, giving to the mind, by proper exercise of all our faculties, mental and moral power to keep in subordination the emotions, the passions, and the propensities. I must refer to former Letters for details on these subjects.

We often charge Providence with the infliction of calamities which are the result of our own folly;—probably, when our knowledge is more extended, we shall discover that many of the evils, physical and moral, which still afflict mankind, advanced as we are in civilization, may be altogether prevented. The plague was considered by our forefathers as a direct visitation, for the punishment of the sins of a wicked generation, but more knowledge has shown that it was an indirect punishment for the neglect of natural laws, calculated to teach men that dirt, impure air, bad food, acting on a very crowded population, which retained about its habi-

tations offal and filth of every description, will engender malignant diseases. Concentrate again the same causes, the same effects will result. Better-ventilated habitations, more space for the population, and the partial removal of nuisances, has freed London from the scourge of plague. More extended knowledge will free it from other nuisances and other diseases; there is still room for much improvement. The more rapid removal of the accumulations of dirt in the public streets, of all slaughter-houses in yards and cellars, the banishment of gas-works, and all factories generating noxious gases, to a greater distance, and the final abandonment of the custom of burying the dead under our windows, are among the improvements which we may fairly hope to see added to the civilization of the present generation. Will it be believed a century hence, that so enlightened a people as the English, who, among other evidences of it, have paid twenty millions to put an end to slavery in places thousands of miles away, should look on quietly, and permit, during two days in the week, infuriated oxen to be driven through the crowded streets of its metropolis, to be slaughtered in hundreds of butchers'-shops and cellars,—that children should witness in its leading streets sheep and lambs enticed into shops, or poked into cellars, often with revolting barbarity? May we not hope that, before the lapse of many years, it will be recorded with astonishment, that such a place as Smith-field Market could have been endured by the population and allowed by the Legislature?

The scurvy, as it occurred formerly on board ships, in

prisons, in besieged towns, &c., is another capital illustration of the power we possess over disease and death. The ravages committed by this disease may be well understood by a perusal of Anson's voyage in the last century: the three ships in ten months lost 626 men out of 961. The graphic description given of the difficulty in getting into the harbour of Juan Fernandez proves the truth of the statement, that, had they remained a few days longer at sea, they must have drifted at the mercy of the winds and waves, so few hands remaining capable of working the ship. Captain Cook's first voyage was almost equally calamitous, but his benevolent and energetic spirit was so roused, that he determined to try whether it was not possible to check such a horrible state of things, and he succeeded so well, that, in his subsequent voyage, his ship lost only one man by disease during three years.

The scurvy is a disease of the blood, and may be generated anywhere, on land or sea, by a combination of circumstances which greatly deteriorate the general nutrition of the body, and interfere with the healthy assimilation of the food. Insufficient or decayed food, with confinement in bad air, a scanty supply of water, and that in a putrid state, filth of person and habitation, —these, with the free use of spirits, formerly produced scurvy in our fleets. A ship of war in the last century was very different to what it now is: dirt and insubordination have given place to the utmost cleanliness and the best discipline; but it is to be feared that many merchant-ships still afford conditions favourable to this

disease, as is shown by the records of the Dreadnought hospital ship. The disease is still occasionally produced in our prisons; and, in a modified form, it is to be found among the squalid inhabitants of some of the wretched abodes of the great city in which I am now writing.

We often see among the ill-fed inhabitants of the worst parts of the metropolis a condition which is an incipient stage of this disease,—the skin, particularly of the legs, is covered with dark purple spots,—the gums are spongy, and very apt to bleed. In an aggravated form, scurvy is characterized by a dark and swollen state of the gums, the teeth become loose, the breath is very offensive, the bloodvessels become weak, the slightest blow producing the appearance of a severe bruise; sometimes blood pours from the nose, mouth, and ears, or is effused among the muscles of the limbs. In the mouth and on the limbs ulcers break out, which speedily become most foul and unhealthy, while the whole system is so exhausted that the slightest effort causes faintness. To this state was the remaining part of Lord Anson's crew reduced when they reached the island of Juan Fernandez. The description of the difficulty of conveying the poor creatures from the ship to the tents which had been erected on the shore is most appalling; many of them dying before they reached the scene prepared for their recovery.

As gross neglect of the laws of health gives rise to scurvy, so a rigid observance of these laws is the proper means of cure. The want of fresh vegetables is one cause of the disease, and all ships are now supplied with

plenty of lemon-juice, as the best substitute for this privation,—a certain amount of vegetable acid being essential to the healthy condition of the system. The disease will occasionally occur where there has been no other exciting cause than the want of fresh vegetables. A spongy state of the gums is an almost certain indication of something defective in diet ; indeed, the state of the gums is at all times a very good index of health, and when swollen, spongy, or ulcerated, show the existence of a depraved condition of the stomach and digestive organs. In all cases where bad health has been produced by disobedience of the natural laws, we have only to return to the due observance of these laws to insure a recovery of health. All degrees of that vitiated state of the blood constituting scurvy will be removed by good air, good food, and cleanliness.

Captain Parry lost only seven men out of 334, under all the disadvantages of an Arctic voyage. Such is the difference between knowledge and ignorance ; such are the results of mental, moral, and physical improvement consequent on carrying out the laws of health. Let us dispel the dark ignorance of the many—let us carry the light of knowledge to the land-abodes of vice, misery, and destitution, and our efforts will be rewarded by the same success which has crowned the benevolent views of Howard in regard to prisons, and Cook in regard to ships.

In many parts of London, the formation of sewers has been succeeded by obvious improvement in the health of the district,—the lower parts of houses which had been

formerly very damp, and the walls covered with mouldiness, after the filling up of cesspools, &c., becoming perfectly dry. Instances are not uncommon of persons who had never enjoyed a day's health for many years while living in a peculiar locality, and who, after removing, have recovered their health without any medical treatment, by the sole influence of a more congenial climate, or a drier soil. A house, situated amidst others in a healthy district, has long been the seat of malaria, generated by the bad construction of its drains; all attempts at improvement have proved vain, until the whole house has been pulled down and rebuilt, when the health of its occupants has proved as good as that of the rest of the vicinity. In former days, diseases thus produced would have been considered inflictions of Providence, while the direct exciting causes were unexplored and unknown.

Of the moral evils which are supposed to press and impede our intellectual progress, it appears to me that we may come to the same conclusion,—that they are not absolute evils, but the trials and tests foredoomed, and intended for the development and advancement of our intellectual and moral faculties. The changes and chances of life, all its disappointments and afflictions, when rightly considered by a reflecting mind, lead to the liberation of our moral powers from prejudice, bigotry, and selfishness. Knowledge of mankind, and of the very various characters of men, resulting from differences of birth, parentage, and education, and of original constitution by nature, lead us to be charitable in our opinion

of other men, teach us to be tender in our judgments, and gradually free us from envy, hatred, and malice. An intimate acquaintance with mankind teaches us that we cannot all think alike, that it is so ordered by the Divine laws ; the degrees and combination of our faculties are so diversified, that all society must be a system of compromise, and men must agree to differ, each giving and taking, for the sake of peace, without abandoning moral principles. The wars of intellect must succeed the wars of the sword : to a great extent this has already taken place, and, there is every reason to believe, will increase. Christianity, divested of the additions, interpolations, and superstition of the barbarous ages which succeeded its introduction, the progress of education, and the extension of the higher faculties of mind and moral feeling, the progress of which may be clearly traced through the last century, and which have been further developed in the present, afford to the contemplative mind a more satisfactory view of human nature than existed at any former period of the world.

We must not expect to see vice and ignorance banished from society, but we may hope to see them banished from high places, and that those who are exalted above their fellows, to take part in the government of their respective countries, will be, from the advantage of better education, morally and intellectually more fit for their position than their predecessors. I think we have abundant evidence of such progress in all countries, but more especially in those most advanced in civilization. There is more forbearance between

ranks and parties—mutual regard is paid to peculiarity of circumstances, and the necessary difference of opinion which must result—the Christian feeling of charity, as delineated by St. Paul, is taking effect on all well-educated and well-trained minds.

It is impossible not to allude to the illustration of what is here said, afforded by the example of “the foremost place in all this world”—the throne of Great Britain. Was there ever before seen, in any age or any nation, such illustrious proofs of the good effect of proper education and training? I have in a former page alluded to the influence of mothers in the education of children—a more striking example of the fact could not be adduced, and the people of England owe a debt of gratitude to the mother of our Queen which, perhaps, they do not sufficiently appreciate.

The following extract is from the “Life of Southey,” and, considering how far back (thirty-five years) it was written, may be looked upon as a remarkable prophecy, which some of the present generation may hope to see fulfilled:—“I incline to think there will come a time, when public opinion will no more tolerate the extreme of poverty in a large class of the community, than it now tolerates slavery in Europe.” The movement towards improving the dwellings of the industrious, headed by Prince Albert, is perhaps the very best direction which benevolence could take. Nothing so promotes the welfare of a nation as the domestic virtues; and nothing will more certainly produce them than a comfortable home. A comfortable home is almost an

impossibility in large towns, under the present horrible system of farming houses, for the purpose of dividing them into as many family compartments as possible, without any consideration for decency or comfort. Model lodging-houses are the greatest blessings that could be provided for the industrious.

Are not the assertions, that man was born to evil, that unhappiness is his lot, that this world is a vale of tears, perversions, or at least exaggerations? That such is the frequent doom must be admitted, but a calm inquiry into the causes of human misery will exhibit the fact, that it is the result of a neglect of the laws of God, and not the intended effect of them, which afflicts and renders miserable so large a portion of the human race. I confess I doubt the assertion, that there is more misery than happiness in the world, even at its present low state of progress. Children constitute a fourth, or more, of every existing generation, and none can deny their happiness; and of the remaining portion of mankind, half, at least, enjoy good health and a fair amount of prosperity, and the rest are not all unhappy; so that, if this view be correct, we must at once remove more than half of every generation from the assumed misery. Where a great extent of wretchedness does exist, it is not heaven, but man, that is in fault; true it is, we are sent naked into the world, but gifted with powers capable of providing all that is required to counteract the opposing influences to health and happiness, through all the phases of human life, from infancy to age.

I have already shown that one great disease, which

committed prodigious ravages formerly, and the occurrence of which was then imputed to a special interposition of Providence, has been proved to have resulted from gross ignorance and neglect of the laws of health—that it has entirely ceased in all places where attention has been paid to the sources of disease and their partial removal. I have endeavoured to show that many other of the evils, moral and physical, that afflict mankind are equally removable by increased knowledge of the order of nature, and a due observance of the Divine laws.

The partial destruction,* and invariable amelioration, of that loathsome disease, small-pox, by the introduction of vaccination, is another notable example of the power which God has given to man, of controlling the evils which surround him, by observation of the natural laws, and by acting in accordance with the knowledge so obtained. We have evidence of the improvement of many very unhealthy districts, where ague formerly prevailed to a great extent, and is now scarcely known, in consequence of draining off the moisture. The great improvement of the habits and health of the whole community—the mitigation of the destructive powers of epidemic and endemic diseases—the increased value of human life, as proved by the tables of life insurance, together with the influence of the whole system of insurance in alleviating calamities—may be instanced as examples of the power of mind over evil.

* It is said to be exterminated in Denmark and Bavaria.

LETTER XXVIII.

DISEASE PREVENTED BY INTELLECTUAL AND MORAL IMPROVEMENT.

MY DEAR F——,

OF the great number of diseases which afflict the human race, some are entirely beyond our means of prevention, but the majority, and that general condition known under the term of bad health, result from our ignorance of, or inattention to, those laws which direct us to avoid conduct leading to sin, error, and disease. When we infringe any of these laws we suffer in mind or body, or in both ; and frequent repetition of the pernicious effects of our disobedience to the laws of God gradually impresses us with an apprehension of the misery which results from sin, error, or disease. From an opposite line of conduct result health of mind and body, joy and happiness ; and the inference is thus forced upon us, that it is our interest as well as our duty to learn and obey these laws. Thus, what we call the laws of nature will be found strictly in accordance with all true revelation of the Word of God. Of course, both being the teaching of the Supreme, and the result of his pro-

vidence for the welfare of his creatures, where the teaching of both agree we can have no doubt. If we find discrepancies in the teachings of one with the other, it is our duty to inquire into the fallacy,—for fallacy there must be, either in our inferences, or error must have crept into the Word by negligent scribes, or the many other sources of inaccuracy to which all written and printed books have been subject.

The human frame was intended to withstand external influence and internal decay for seventy or eighty years, and as we know that a very small minority fulfil this law, we may fairly inquire into the causes. Such inquiries we have made, and find, in a large number of instances, the cause to be neglect of the laws of health applicable to the prevention of disease. The gradually-diminishing rates of mortality in very young children prove how much is in our power. The remarkable diminution of the number of deaths when the legislature forced the London parishes to send their workhouse-born children into the country has been mentioned, but in all large towns, the number of children brought into the world only to die is still frightful, and serves to show how much remains to be done by more extended knowledge of the laws of health. In the twenty years, from 1730 to 1749, of 100 births, 74 children died before the age of five: in the twenty years from 1810 to 1819, of 100 births, only 31 died before the same age.

London is now the healthiest capital in Europe, from having been one of the most unhealthy before the great fire, showing that many of the scourges of our race are

altogether preventable, and that the destructive power of such a disease as plague is within our control. We have further evidence on this point in our recent experience of cholera : comparatively speaking, it neglected the well-nourished, clothed, and housed, — it almost passed over districts where cleanliness, draining, and other laws had been attended to, and chose for its pabulum districts notoriously unhealthy, from a crowded population, ill-nourished, clothed, and housed, where the sewerage was bad, the water unwholesome and scanty, and where poverty, vice, and misery abounded. Let any benevolent and wealthy person reflect on the published statistics of the Registrar General, and he will still find opportunities for active beneficence, without at all interfering with the many who already, to the glory of our country, voluntarily devote themselves to such praiseworthy objects.

Our power over disease may be farther illustrated by the voyages of Anson, Cook, &c., in the last century, before the laws of health were studied, and the results of the later voyages of Cook, and the Arctic expeditions of the present century. The horrors of scurvy, and the general mortality in ships, under former management, before hygiene or the prevention of disease was studied, is well known to all. The history of the Millbank Penitentiary is a very instructive example of disregard of the laws of health. In the year 1822, chronic diarrhoea and other diseases of the bowels were almost universal among the prisoners, the effect of a miserable diet, which, added to the depression natural to a state

of confinement, carried off many victims ; nor could the disease be checked until the prisoners were removed to more healthy localities. The prison has been since re-occupied, and by better diet, &c., the prisoners now enjoy fair average health, and I believe the present mortality does not exceed that of other prisons. We thus see the power we possess over the causes of bad health ; indeed, such is now the comparative superiority of the health of seamen and prisoners, from being obliged to live by rule, that it may be a question whether many, who survive a voyage or an imprisonment, would not have been victims to disease, had they been living in their ordinary conditions at home.

Tables obtained from registration of deaths show the greater mortality at all ages, among the poor and working classes, than among the rich and easy classes of society. Intemperance has, no doubt, much to do with the result, but ignorance, and inattention to the general laws of health, engender disease and shorten life in a larger proportion among the ill-informed than among the better-instructed classes of society. What must be the state of atmosphere in a room ten or twelve feet square, occupied day and night by two adults and four or five children ! We need look no farther for causes of bad health than this, which is almost universal among the working classes in towns. The pigs and oxen of our grumbling agriculturists are better housed than thousands of men, women, and children. It is not that the poor pay less rent than other classes. In proportion to their incomes they pay more—as they do, in fact, for

everything they consume, for they not only pay a higher price, but get an inferior article. There is no better field for the benevolent than the formation of model lodging-houses for our industrious population.

I think we may fairly conclude that bad health is more commonly the result of the gradual operation of improper food, insufficient fresh air and exercise, and want of cleanliness to the skin, than the vicissitudes of weather, or other accidental causes. Without the previous process of deterioration of health, consequent on our own inattention and folly, inclemency of weather, &c., would have much less influence. Disease is much more frequently the result of our own conduct than the direct infliction of Providence, the necessary result of climate, or other external influence.

Much yet remains to be done by philanthropists to improve the condition of all classes of society. Many evils might be amended even among the classes in easy circumstances, and there can be no doubt that a greater diffusion of the knowledge of physiology, and the general laws of organic life, will tend much to increase the intellectual, moral, and physical welfare of our race.

Fully to possess and to enjoy health, it is necessary that the mind should be actively as well as usefully employed—this is effected in the major part of mankind by some necessary occupation. In those whose means place them above this necessity, mental energy should be directed to some voluntary and benevolent occupation. But, if we would be happy, we must also employ the mind in the constant acquisition of such knowledge as

will improve its powers of thought and reflection. You ask me to define what I mean by such knowledge: my answer is, to learn the laws which govern the bodies by which we are surrounded, both inorganic and organic, the constitution and order of nature, and therefore of man; in other words, the general study of the laws of God. This knowledge would make us acquainted with the proper objects of human existence, those which conduce to our happiness both here and hereafter, and lead us "from Nature up to Nature's God"—the summit of all earthly wisdom.*

Without a knowledge of our own constitution, and that of external nature, it is quite impossible we should know how to regulate our inquiries, and direct our minds to proper pursuits. We soon discover that our constitution is minutely adapted to the constitution of the world we inhabit; that all our senses are in harmony with the objects upon which they were intended to be exercised; that our organ of vision is exactly suited to the objects that we require to see; and that all our other senses and faculties are equally well adapted to their objects. Can we require any other proof of a Divine Intelligence than the perfect adaptation of all our organs and faculties with the world we live in? Geology proves that the earth existed ages before man—that it was inhabited by other creatures before it was fit for man's existence: he could not have lived in the atmosphere which existed when *Icthyosauri* and other reptiles were its chief

* In Combe's "Constitution of Man" this subject is admirably treated.

inhabitants. Man was created when the earth was fit for his reception, and his organs, functions, and faculties are just such as are alone fitted for the state of things as they now exist on this globe.

To understand the working of the mind and its general constitution, as far as our limited faculties permit, is of vast importance to our health and happiness. How can we properly employ the mind, unless we know what it is capable of, and the objects to which it should be directed? That true wisdom concentrates happiness in the mind, has been admitted by all ages and nations,—“that the state of the mind is of more importance to happiness than outward circumstances,” is a position strengthened by the consentaneous opinion of all who deserve the name of philosophers. The great superiority of mental acquisitions over corporeal and sensual enjoyments is evidenced by the fact, that satiety attends the latter, but never the former; for the more the mind is exercised, and the further it carries its inquiries, the more it discovers yet to be learned, and the greater the enjoyment it has in learning. The true test, probably, of a right direction of human inquiries, is the evidence of an increased zeal in the pursuit, and desire for acquisition of further knowledge of the subject pursued.

There is no science connected with inquiry into the operations of nature that does not grow with our knowledge of it, and more remains to be acquired than has yet been learned by the most diligent student in the longest life. The more he knows, the more he sees beyond his acquired knowledge which he is desirous of knowing. This is not alone applicable to any one

science, but also to the general development and enlargement of mind consequent on its active employment. The most learned of men in natural science see beyond the reach of their faculties very much more to learn, than, in the present condition of our understanding, we can comprehend. We feel the want of new senses and new powers to discern the operation of laws, which must ever remain unintelligible to our present faculties. Is not this the strongest evidence of a continued existence of the identical mind, and separate individual personality, which had made the inquiries in this world, and feels the necessity not only of lengthened existence, but of more exalted faculties, to continue them?

The respective enjoyments of the different faculties of which our mind is composed is corroborative evidence of the wisdom of our pursuits. Such as have a limited existence, such as die a natural death during our existence here, may be fairly considered as inferior to those which continue to gratify the soul as long as it continues to feel enjoyment, and still contemplates, in another state of existence, the farther pleasure of increased knowledge. Such are the limited pleasures of sense, contrasted with the unlimited pleasures of intellect.

The more the mind is exercised in inquiries into the order and constitution of nature, the stronger is its conviction of a great intelligence, which must have imparted power to inert matter. Perpetual motion is a dream, only resolvable into the source of all power—mind. What is the source of power in a watch or a steam-engine?—Mind, which places inert substances in such approxima-

tion, or position, or condition, that power results. To become acquainted with, and to apply, the laws of nature was the special gift of God to man, and the more the faculties of the mind are developed, the greater the power of man over matter. The application of steam, as a motive power, required those successive efforts of mind which discovered the influence of fire over water, and the laws regulating the latter, in its conditions of fluidity and of vapour. In all probability, the human mind is yet destined to discover other sources of power, as well as many new applications of that which it has already employed.

The proper exercise of the mind of man is on the works of his Maker, rather than on those of his fellow-man; and probably a much higher degree of happiness is in store for him, when education shall be more directed to the natural sciences than to the arts and literature, which have been hitherto almost the exclusive teaching of our schools. Most assuredly the performances of man, whether in literature or the arts, do not so certainly lead to the conception and conviction of the Divine existence, as inquiries into the order and constitution of nature, a knowledge which we may justly say is yet in its very infancy, having been almost entirely neglected in our schools for the sake of verbal grammar, languages, and literature, as many, even in our old universities, are beginning to think.

In learning the laws and constitution of our own mind, the laws and order of nature and their mutual relations, we obtain a sevenfold shield against "all the

ills that flesh is heir to." The knowledge of ourselves has always been regarded by enlightened divines and philosophers as the most important of all mental acquisitions; how difficult to acquire, and how rarely obtained, all are agreed. It might be a fair subject for argument, whether the proper method of pursuit has yet been taught; those appear to have approached nearest to the knowledge who have been ardent lovers and students of nature. Have not our greatest minds been among astronomers, and the next in degree among physiologists and naturalists? I do not speak of minds with original genius, as Homer and Shakespeare, but those which in the course of human pursuits have arrived at the highest degree of moral excellence. It ought to be so, because such men are always conversing with the Infinite, and constantly observing more and greater objects of admiration, whether they contemplate the countless myriads of worlds displayed by the telescope,—or gaze with wonder and admiration on the multitudes of minute and infinitely varied forms developed by the microscope.

The mind of that man is in the healthiest condition, who cannot step through a lane or a field without seeing objects familiar to him for the beauty of their structure,—who cannot look up to the heavens without meditating on the glorious and illimitable worlds by which we are surrounded.

“Perhaps our future home,
From whence the soul shall oft look back,
With recollected tenderness, on all
The various busy scenes she left below,
The deep laid projects and the strange events,
That soothed her infant hours.”

A mind stored with knowledge, and having some notion of itself and the object of its existence, will never be oppressed with ennui, languor, disgust, low spirits, melancholy : it will hardly admit the real existence of such conditions. As I have before observed, it is questionable whether such an intellect can be the subject of insanity ; possessing a knowledge of its duties, and fortitude to act on such knowledge, knowing its mission, (to use a favourite modern phrase,) and its relative position among the works of an Almighty hand.

The more extensive our acquaintance with the works of nature, the more our wonder increases with the accumulated evidence of power, wisdom, beneficence. Whether we contemplate nature on her grandest scale, as amidst the stern desolation of a mountainous region, far beyond the habitation of man, or the structure of the humblest plant, or on the mighty ocean—

“ Where the Almighty’s form
Glasses itself in tempests ; in all time,
Calm or convulsed—in breeze, or gale, or storm,
Teing the pole, or in the torrid clime
Dark-heaving ;—boundless, endless, and sublime—
The image of eternity—the throne
Of the Invisible.”

Whether we examine the structure of an animal or a plant, and descend, by means of the microscope, to the most delicate, most minute, and yet most perfect forms, increasing admiration still attends our inquiries. But great as may be the feelings excited by the contemplation of the animate and inanimate objects of nature, on the grandest or minutest scale, how much above all these

should be our admiration and our gratitude for those powers of mind with which our Creator has endowed the human race. Expressions are wanting of adequate force to incorporate our feelings. Our familiarity with mind, and its manifestations, prevents us from having a full conception of what it really is, and the immensity of the gift. The other works of God are governed by necessary and undeviating laws, which can only be changed at the will of the Divinity,—but the human mind has been endowed with a spark of fire divine, which gives it an independent power of originating new ideas, or combinations of ideas, almost, if not quite, amounting to a new creation of what never before existed. Perverted by mistaken views as the human mind is from its Divine original, it still retains features which sufficiently attest its author,—it possesses one of his grand characteristics, immensity. Thought has no limit, but, like extension, exhibits scene beyond scene in endless profusion: such is the illimitable field of mental power, that we can see no end to mind's imaginings. Did not the mind of Shakespeare create what had never before existed?—

“The poet's eye in a fine frenzy rolling,
Doth glance from heaven to earth, from earth to heaven;
And as imagination bodies forth
The forms of things unknown, the poet's pen
Turns them to shapes, and gives to airy nothings
A local habitation and a name.”

Look, again, at the moral power of man in some of the more exalted of our species—what grand examples of disinterestedness, self-sacrifice, devotion, generosity, in-

flexible integrity, conscientiousness. What sufferings have been endured for conscience' sake—doubtless, in numerous instances, from mistaken views; but, nevertheless, the fact remains of such power of the mind over the body,—that present torture of the most inventive cruelty,—the most heart-rending pangs of dissevered ties,—have been endured by human beings with such fortitude, as could only have resulted from unflinching confidence in Divine justice, exalted conviction of the incorruptibility of the human soul, and an utter disbelief of the possibility of its annihilation.

THE END.

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